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PROCEEDINGS

ARBITRATION

BETWEEN THE

WESTERN RAILROADS

AND THE

BROTHERHOOD OF LOCOMOTIVE ENGINEERS

AND THE

BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN

Submitted to Arbitration, under the Act of July 15, 1913
By Agreement Dated August 3, 1914

CHICAGO, ILLINOIS

Jan. 4-Jan. 14, 1915
Testimony Nos. 19-27 Pages 1885-2777

Vol. 3

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IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 4, 1915.

Met pursuant to adjournment at 10:20 A. M.
Present: Arbitrators and parties as before.

Mr. Stone: Mr. Chairman, I should like to make a statement before taking up the work of the day. Unfortunately, we have been confronted with a new situation. Mr. Carter's mother died very suddenly, and he is taking her to Austin, Texas, for burial, and it will not be possible for him to return until some time the latter part of the week, if at all this week. So, Mr. Phillips and myself will go ahead with the work, but it will necessitate making some slight changes; outside of that we will go ahead.

Mr. Sheean: On behalf of the Conference Committee, we desire to express our sympathy to Mr. Carter in this distressing situation, and to say, that if, in any manner, any delay of any sort will aid or assist, of course, we will be more than glad to co-operate in any way that may be suggested to make the situation as easy for him as is possible under the circumstances.

Mr. Stone: Mr. Chairman, we had intended, after finishing up with the switch engine firemen as witnesses, to put in a couple of exhibits and the men who had prepared them, bearing on the evidence that had been submitted, and then Mr. Hawley, the Secretary-Treasurer of the Brotherhood of Firemen and En-

gineemen and also their chief medical man, showing vocational diseases. The only change that we will make, as Mr. Carter desires to handle those exhibits himself, is that after we have finished with the switch engine firemen I will put on Mr. Lauck, our statistician.

The Chairman: On behalf of the Board, I desire to say that we are pained to learn of the death of Mr. Carter's mother, and we tender to him our deepest sympathy in this his hour of great bereavement. If, in the meantime, you shall have concluded the testimony of this character, I see no reason why these other witnesses should not be put on, out of order, even though the railroads should have commenced with their testimony before Mr. Carter returns.

Mr. Stone: We will not have it concluded; Mr. Carter will be back before I shall have finished with Mr. Lauck, only it does not bring them in the regular routine in which we expected to put them on.

WALTER E. WESTPHAL was called as a witness and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: State your full name.

Mr. Westphal: Walter E. Westphal.

Mr. Phillips: And your place of residence?

Mr. Westphal: Chicago, Milwaukee & St. Paul Railroad.

Mr. Phillips: At Chicago?

Mr. Westphal: At Chicago.

Mr. Phillips: You are employed by the Chicago, Milwaukee & St. Paul, at Chicago?

Mr. Westphal: Yes, sir.

Mr. Phillips: In what service?

Mr. Westphal: Firing service.

Mr. Phillips: Yard firing service?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you also worked in road firing service?

Mr. Westphal: No, sir.

Mr. Phillips: Have you worked in transfer service?

Mr. Westphal: Yes, sir.

Mr. Phillips: So that your duties as fireman consist of firing in yard and transfer runs?

Mr. Westphal: Yes, sir.

Mr. Phillips: Will you please state the nature of your work as a switch engine fireman, that is at the beginning of your day's work, the labor performed and the hours ordinarily consumed in a day of firing a switch engine.

Mr. Westphal: Well, we are required to report thirty minutes before leaving time. The majority of the switch engine jobs start at 7 o'clock A. M., and a man has to be there thirty minutes before leaving time. He is supposed to see that all the necessary supplies are on the engine, take care of the fire, examine the water in the tank, fill his lights in the cab, and by the time he has performed that duty, why, it is almost ready to leave. He may draw a can of drinking water, fresh water to drink out of, and by that time the engineer has already oiled around and done his necessary work upon the engine, and it will be about time to leave.

Mr. Phillips: Is this work necessary in the preparation of the engine for the day's service?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you receive any compensation for this preparatory work?

Mr. Westphal: No, sir.

Mr. Phillips: Then it is necessary, and the rules of the company require that you be on duty thirty minutes before your pay begins, and to perform this preparatory work before your day's service has commenced?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you have to fill these lights and do this other preparatory work both morning and night, for the engines for each shift?

Mr. Westphal: Yes, sir.

Mr. Phillips: Ordinarily you do?

Mr. Westphal: The day man fills for the night man.

Mr. Phillips: Does the night man fill them for the day man?

Mr. Westphal: No, sir.

Mr. Phillips: Then would the night man have the same preparatory work to do?

Mr. Westphal: Outside of filling the cab lights, yes, sir.

Mr. Phillips: How many hours are you employed ordinarily in yard service?

Mr. Westphal: Day work, generally eleven hours.

Mr. Phillips: How many hours night work?

Mr. Westphal: About thirteen.

Mr. Phillips: How many hours are you away from home ordinarily?

Mr. Westphal: Well, on a day job, a man has got to get up about 5:30 in the morning in order to be there at 6:30, and they have a coach run running from Western Avenue to Galewood, a sort of work train, and the man has got to get up there in time to get these coaches. They have certain hours to run. A man gets up and takes a street car and it takes about thirty minutes to get down on the street car.

Mr. Phillips: Then you are away from your home practically an hour before your day's work begins?

Mr. Westphal: Yes, sir.

Mr. Phillips: Getting to your place of work and doing this preparatory work you have spoken of, have you not?

Mr. Westphal: Yes, sir.

Mr. Phillips: Then how long is it after your day's work is completed before you are relieved and you can reach your home?

Mr. Westphal: Well, it generally takes from three-quarters of an hour to an hour before you are home.

Mr. Phillips: So that if you work a day of eleven hours you are really away from your home twelve hours and forty-five minutes, or thirteen hours, generally?

Mr. Westphal: Yes, sir.

Mr. Phillips: Now, how would it be for the night shift? Would you add one hour and three-quarters or two hours to the thirteen hours?

Mr. Westphal: Yes, sir.

Mr. Phillips: It requires about the same length of time for a man to get down to his place of work and get back to his home?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you any duties after your day's work

is completed, such as removing tools or supplies, or doing anything of that kind?

Mr. Westphal: No, sir; supposed to go up and register after arriving at the coal shed.

Mr. Phillips: So that the forty-five minutes or the hour after your day's work is ended is consumed in registering or changing your clothes or in making necessary street car or transfer connections to go back to your home?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you worked both days and nights in yard service, Mr. Westphal?

Mr. Westphal: Considerably.

Mr. Phillips: Is there any difference between day work and night work?

Mr. Westphal: Yes, sir.

Mr. Phillips: Which do you prefer?

Mr. Westphal: Day work.

Mr. Phillips: Is night work more disagreeable than day work?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you consider it more dangerous?

Mr. Westphal: Yes, sir.

Mr. Phillips: Why do you consider it more dangerous working at night?

Mr. Westphal: Some nights it is almost impossible to see whether cars clear. Such as switch lamps, it is hard to find cars at night time, going up dark tracks; and it is very hard to locate cars on the next track, such as whether cars are shoving in through cross-overs and through the next switch.

Mr. Phillips: Do you find it difficult to get your rest when working nights; that is, is it harder to sleep in the daytime than it is in night-time?

Mr. Westphal: Yes.

Mr. Phillips: That is another feature that makes night work disagreeable, is it?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you know what wages switchmen and yard conductors and brakemen receive in the same yard in which you are working?

Mr. Westphal: A day switchman receives 35 cents an

hour, and 2 cents more for a night switchman. He receives 2 cents more for night work. The day conductor receives 38 cents an hour and the night conductor 40 cents an hour.

Mr. Phillips: They receive 2 cents per hour more for night service over day service?

Mr. Westphal: Yes, sir.

Mr. Phillips: What do they term night service?

Mr. Westphal: I don't understand you.

Mr. Phillips: Well, do you include as night service engines going to work at 6 P. M. or 7 P. M., or would engines that went to work any time outside of 6:30 A. M. and 7:30 A. M., or some hour within that radius, receive night rates?

Mr. Westphal: Switchmen going to work outside of hours of 6:30 and 7:30 receive night rates.

Mr. Phillips: That is to say, if a switchman began work at 8 A. M. he would receive 2 cents an hour more than if he began work at 6:30 or 7:30 A. M.

Mr. Westphal: At 7:35 they would pay him for night men's pay.

Mr. Phillips: Do they work many of those split tricks working outside of the designated hours?

Mr. Westphal: They do in the morning, in calling crews, such as they have what they call a 5 o'clock transfer run.

Mr. Phillips: And, for those runs the switchmen would receive 2 cents per hour more than if they were called for a run beginning at 6:30? Is that correct?

Mr. Westphal: Yes, sir; for all day.

Mr. Phillips: That is, for the part of the night he worked, from 5 o'clock until day work, if it was in winter time, or if he worked until after it was dark in the evening, or if he did or not, if his work was all in daylight hours, he would get 2 cents per hour more—both the yard conductor and the brakeman—if they went to work outside of the hours between 6:30 and 7:30 A. M.?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is it the practice of the company to begin their day shift, or their day crews, between those hours, ordinarily?

Mr. Westphal: Yes, sir.

Mr. Phillips: Excepting such tricks as are necessary to operate otherwise?

Mr. Westphal: Yes, sir.

Mr. Phillips: At what time do the night crews go to work?

Mr. Westphal: Some of them, the majority of them, go to work at 6 P. M.; and we have a few jobs that go to work at 6:30, 6:45 and 7.

Mr. Phillips: These jobs pay to all switchmen and yard conductors, or foremen of switch engines, a differential of 2 cents per hour, do they?

Mr. Westphal: Yes, sir.

Mr. Phillips: Or 20 cents difference on the day's work of ten hours?

Mr. Westphal: Yes, sir.

Mr. Phillips: What are your rates, Mr. Westphal, for firing a switch engine?

Mr. Westphal: The small class, 95 engines, pay 25½ cents per hour; our C-1 or C-2, that is our Consolidated locomotives, pay 28½ cents per hour.

Mr. Phillips: And there is 9½ cents difference between your hourly rate and the switchman's day rate on the smaller type engines?

Mr. Westphal: Yes, sir.

Mr. Phillips: And 6½ cents difference between your larger type engines, and the switchman's day rate?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you believe the switchman gets too much money?

Mr. Westphal: Well, I don't know, I could not say whether he gets too much money or not; but some nights they earn their money and probably some other nights they do not earn their money, when there are delays and so forth.

Mr. Phillips: It is a pretty hard job running up and down yards, cutting cars, and climbing up and down, is it not?

Mr. Westphal: Yes, sir; and a very dangerous job.

Mr. Phillips: Do you think a fireman gets enough money?

Mr. Westphal: No, sir.

Mr. Phillips: Do you think the fireman, for the work he performs and the responsibility he assumes, should be entitled to more wages than he now receives for firing switch engines?

Mr. Westphal: Yes, sir.

Mr. Phillips: You spoke of firing transfer service, I believe.

Mr. Westphal: Yes, sir.

Mr. Phillips: Is there any difference on your road in the rates as between yard service and transfer service, on the same engine?

Mr. Westphal: No, sir.

Mr. Phillips: Is there any difference in the work?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you think the transfer service is harder work?

Mr. Westphal: Yes, sir.

Mr. Phillips: That is, you burn more coal?

Mr. Westphal: Considerably harder.

Mr. Phillips: It is considerably harder?

Mr. Westphal: Yes, sir.

Mr. Phillips: You have fired in transfer service, have you?

Mr. Westphal: Yes, sir.

Mr. Phillips: Did you select it by reason of your seniority, take it as preference?

Mr. Westphal: No, sir.

Mr. Phillips: Why did you take it?

Mr. Westphal: For the money the jobs were paying.

Mr. Phillips: I understood you to say they paid the same rate.

Mr. Westphal: They do.

Mr. Phillips: Then do the transfer jobs work longer hours, or do you make more overtime?

Mr. Westphal: Yes, sir.

Mr. Phillips: Then on account of the low rates, you are willing to accept the harder work and work harder, in order to get the additional money earned in overtime; is that right?

Mr. Westphal: Yes, sir. The majority of our transfer jobs have a big engine, which pays us three cents an hour more also.

Mr. Phillips: But if that big engine was used in yard service, it would pay—

Mr. Westphal: The same amount per hour.

Mr. Phillips: And if the big engine was used in yard serv-

ice, and worked the same number of hours it does on the transfer, would you prefer to have the engine on the yard service?

Mr. Westphal: Yes, sir.

Mr. Phillips: Why?

Mr. Westphal: A man does not have to be on constant look-out for signals and so forth, going into foreign yards. A man has also to be on the look-out, the same as the engineer; there are bad places going into foreign yards, and also in our own yards, where it takes both men, where the engineer cannot see around the curve or up the next track, and you have to assist the engineer in delivering these trains.

Mr. Phillips: I understood you to say you are employed in yard service and have no road rights.

Mr. Westphal: Yes, sir.

Mr. Phillips: Your rights are confined to the yards of the Milwaukee in Chicago?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you have hostlers over there, or I believe you call them engine despatchers on the Milwaukee?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you ever served in the capacity of an engine despatcher or hostler?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you consider that as responsible work?

Mr. Wesphal: Yes, sir; it is very responsible.

Mr. Phillips: What are the requirements of a hostler or engine despatcher on the Milwaukee Road?

Mr. Westphal: When the crew retires from its work, at the end of its work, the despatcher has to take the engine and pull her up to the sand house, where he supplies the engine with sand; that is, they have a man who supplies the engine, but he must spot the engine there. After they get through with spotting the engine for sand and get sand on the engine, if the engine is to be blown down, he has to take her down and have her blown down, and give her a good blowing down, and then fill her up with water. Then they move the engine into the roundhouse after the fire is knocked out and the engine is placed on the particular spot where wanted, and the engine is then taken to the turntable, or sometimes possibly they have to put water on these engines, and the engine may stay in the house

then for a day or so, possibly, and the water may be low in the tank, and he will have to see that there is plenty of water, and probably he will take her to the roundhouse and spot her in the roundhouse, and he will probably have to move them in the roundhouse and spot them at a certain place where they can take such as side rod pins out, or maybe cross head pins, or angle pins, and wrist pins out.

Mr. Phillips: My question, Mr. Westphal, was as to the requirements of the hostler or engine despatcher. I believe you defined the duties. By requirements, I meant what does your company require of the despatcher; do they require that they shall have had some experience?

Mr. Westphal: Three years' experience.

Mr. Phillips: As a fireman?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do engineers also fill those positions at times?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is it not true that the Chicago, Milwaukee & St. Paul Company requires that engineers or firemen, firemen having had at least three years' experience, shall fill these positions?

Mr. Westphal: Yes, sir.

Mr. Phillips: Then, your company evidently recognizes that competent men should be in charge of locomotives?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you believe that incompetent or inexperienced men might cause damage to company property or delay to traffic or injury to other workmen if they do not understand the handling of the locomotive?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is it not a fact that, in order to properly perform the duties of a hostler or engine despatcher, a man must have all the qualifications of an engineer so far as moving and stopping and starting engines is concerned?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is he not required to handle engines that come in perhaps broken down, one main rod disconnected, perhaps, or without the air pump working, engines with no air

brakes which must be handled by steam or by the lever—doesn't the hostler have to do all that work?

Mr. Westphal: Yes, sir.

Mr. Phillips: You consider that a competent man is necessary and the company you are employed by requires that the man shall have three years' experience as a fireman before he is so used; is that correct?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is there any difference in the cost of living in the city of Chicago in the last two or three or four years?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you noticed any material difference?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you maintain a home—are you a married man?

Mr. Westphal: Yes, sir.

Mr. Phillips: And you keep house?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have you found that your home expenses are greater than they were, two, or three, or four years ago?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you believe there is a constant tendency to increase in the expenses?

Mr. Westphal: Yes, sir.

Mr. Phillips: You spoke a while ago, Mr. Westphal, of working on a job that required you to work very long hours and somewhat harder, on account of its being a bigger engine, in order to make the additional wages in overtime—was the reason of that because of the fact that you were unable to maintain your home on an ordinary switch engine fireman's wages?

Mr. Westphal: Yes, sir.

Mr. Phillips: What have your earnings been for the past year, on the average—just offhand?

Mr. Westphal: Well, on the average, about $89 or $90.

Mr. Phillips: Is that all made in the service as a fireman?

Mr. Westphal: No, sir.

Mr. Phillips: How else have you earned a part of that money?

Mr. Westphal: Part as running an engine, locomotive engineer.

Mr. Phillips: You have been examined and promoted to the position of engineer?

Mr. Westphal: Yes, sir.

Mr. Phillips: How much time have you run an engine during the last year?

Mr. Westphal: About four months, off and on, all told.

Mr. Phillips: How long have you been promoted?

Mr. Westphal: Over a year.

Mr. Phillips: Working practically one-third of your time —not quite one-third, but about four months, in a little over a year, you have earned, between your work as an engineer and as a switch engine fireman, an average of $89 or $90 a month?

Mr. Westphal: Yes, sir.

Mr. Phillips: Have there been any reductions in the list in the yard where you are employed?

Mr. Westphal: Yes, sir, considerable.

Mr. Phillips: At the time you were promoted, a little over a year ago, did the prospect seem bright for you to get continuous work as an engineer?

Mr. Westphal: Yes, sir.

Mr. Phillips: What is the prospect at the present time?

Mr. Westphal: Very poor.

Mr. Phillips: Are there other men older than you cut off and back, firing?

Mr. Westphal: Yes, sir.

Mr. Phillips: How many?

Mr. Westphal: Well, I should judge between 15 and 20.

Mr. Phillips: Between 15 and 20 promoted men who have run engines as engineers are now cut off the list and are back on the list as firemen?

Mr. Westphal: Yes, sir.

Mr. Phillips: Does that mean that a corresponding number of firemen have been cut off the list and are entirely out of employment?

Mr. Westphal: More so.

Mr. Phillips: Well, it would be more so, for every engineer, Mr. Westphal, just commonly speaking, two firemen are cut off, are there not?

Mr. Westphal: Well, probably three. We have a reserve

list over there now of about—it was about, just before the holidays, about 125 men.

Mr. Phillips: How many men are employed in the Milwaukee yards?

Mr. Westphal: I don't know.

Mr. Phillips: You don't know how many men are on the engineers' and firemen's lists?

Mr. Westphal: No, sir.

Mr. Phillips: You have about 125 men on this reserve list, I understand?

Mr. Westphal: Yes, sir.

Mr. Phillips: What is your number on the list, Mr. Westphal?

Mr. Westphal: 189.

Mr. Phillips: You are 189 on the list, and about 15 firemen older than you are engineers, is that correct?

Mr. Westphal: Yes, sir.

Mr. Phillips: They are back firing?

Mr. Westphal: Yes, sir.

Mr. Phillips: In making these reductions in the force, is it at the request of the committees of the firemen's organization?

Mr. Westphal: It is with the request of the firemen's organization and also the officials of the company.

Mr. Phillips: Is it not a fact that, when business falls off or larger power is introduced requiring a lesser number of men in the service, that all of the men could not make a living if kept on the board?

Mr. Westphal: Well, if a man cannot live he has got to see that the younger man has got to be pulled off.

Mr. Phillips: Is that not a matter of mutual arrangement between the railroad companies and the employes, the engineers and firemen?

Mr. Westphal: Yes, sir.

Mr. Phillips: That these reductions will be made and the requisite number of men kept in the service, and that those for whom there is no work, the younger men will be dismissed from the service—cut off?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is it not necessary to negotiate or confer

with the proper officials of the company to have these reductions made or changes in the board made?

Mr. Westphal: Yes, sir.

Mr. Phillips: And the company officials have as much to say about it as the men, have they not?

Mr. Westphal: Yes, sir.

Mr. Phillips: You could not, of your own volition, have any number of men cut off the board unless that was approved by the proper officials of the company?

Mr. Westphal: General roundhouse foreman.

Mr. Phillips: I think that is all.

CROSS EXAMINATION.

Mr. Slowan: Has there been any change in the power, the size of the engines in this yard service, in the last year?

Mr. Westphal: No, sir.

Mr. Slowan: The power with which you are operating now is just the same as it was a year ago?

Mr. Westphal: Four years ago.

Mr. Slowan: Of four years ago?

Mr. Westphal: Yes, sir.

Mr. Slowan: Then, the change in the number of men employed in the yards of the Milwaukee where you work is not in any way due to any change in power?

Mr. Westphal: You take the biggest power we have on the road, the L-2 engines, and the longer trains they haul the longer trains we must handle in the terminals. They give us more cars to handle in the terminals and deliver to the foreign yards and the down town districts than any of the industrial plants down town.

Mr. Slowan: In the distribution of these cars and the handling of the cars in the yard, there has been no change in the power with which you have handled it, in the yards?

Mr. Westphal: No, sir.

Mr. Slowan: At any time in the past four years?

Mr. Westphal: No, sir.

Mr. Slowan: This reserve list you speak of on the Milwaukee—they have a system on the Milwaukee, have they not, by which a person stays on the reserve list and at any time, if the company needs more men, he has got first chance to come back?

Mr. Westphal: He has, for any certain length of time. If the company wants him to come back for a week, it would not pay for a man to lose his job outside somewhere to come back for a week's work for the railroad company and maybe lose two or three months' work outside.

Mr. Sheean: A great many of these men on the reserve list are holding jobs elsewhere, although their names appear on the reserve list?

Mr. Westphal: That is, if they can get employment.

Mr. Sheean: And there is nothing about the reserve list system on the Milwaukee that prevents people getting employment elsewhere, and yet, if there is an increase of business, they are given a chance to come back, if they want to?

Mr. Westphal: According to seniority.

Mr. Sheean: When you speak of the number on the reserve list, these men are at liberty to get employment elsewhere?

Mr. Westphal: Yes, sir.

Mr. Sheean: And the company has no call upon their service except that under this arrangement it gives the men a chance to come back if they want to come back, when business picks up, if it does pick up?

Mr. Westphal: Yes, sir.

Mr. Sheean: Now, in the earnings here of about $80 or $90 a month through the last year, how many days a month did you work, about—I just want it in a rough way?

Mr. Westphal: I can tell you here by looking at the book. (Examining book.) Well, I have probably been off about four or five days a month, on the average.

Mr. Sheean: That would be about the average through the same period of time that you give the average earnings here?

Mr. Westphal: Eleven months; yes, sir.

Mr. Sheean: In the transfer service that you speak of here, that is all inside of the Chicago switching district, is it not?

Mr. Westphal: Yes, sir.

Mr. Sheean: And all of the transfer service in which the rate is the same as the switching service, that is, transfer between different points in the Chicago switching district?

Mr. Westphal: Yes, sir.

Mr. Sheean: Now, you speak of long time—overtime

being made upon these transfer runs, at times. That, I suppose, is due in a great many cases to the fact that neither you nor anyone else can tell, on a transfer delivery to a foreign road, just when you will be able to get into that foreign yard or when you can get out?

Mr. Westphal: Yes; and it is hard to tell when you will get home when you leave in the morning.

Mr. Sheean: The officials of the road who send you out on that transfer run haven't any way of telling any more about that than you have?

Mr. Westphal: No, sir.

Mr. Sheean: So when the hours are long, a good part of the long hours is being put in waiting for a chance to do the work in making the delivery?

Mr. Westphal: Well, some nights it may be five or six o'clock in the evening, after working all day long, the conductor may come up and give you an order that you have got to deliver a train to another foreign yard. When you go to deliver that train to the foreign yard the chances are you won't get back until nine or half-past nine.

Mr. Sheean: When you are in the transfer service—you are speaking of the switching crew going out and making a special delivery?

Mr. Westphal: Switching or transfer.

Mr. Sheean: Switching or transfer?

Mr. Westphal: Yes, sir.

Mr. Sheean: And that trip may take you four or five hours, maybe, over a very small number of miles that you run, may it not?

Mr. Westphal: It may. Sometimes it may be longer.

Mr. Sheean: Well, what is the longest transfer run that the Milwaukee has?

Mr. Westphal: Well, about fourteen miles, I should judge.

Mr. Sheean: And about how long does it ordinarily take to make a transfer on this fourteen mile run and return to the yard from which you started?

Mr. Westphal: It doesn't take as long to make the run as it does to make up the cars and get the train together.

Mr. Sheean: I mean from the time you start out from your yard until you get back to the yard from which you started?

Mr. Westphal: When you are making a delivery to a foreign yard and coming back again, it is hard to tell what time you will get back, because you don't know what time you will be blocked at the other end.

Mr. Sheean: That same difficulty applies to all of the officials as well as to the man on the engine?

Mr. Westphal: Yes, sir.

Mr. Sheean: Whether it is four miles or fourteen miles, it may run into long hours in making that delivery?

Mr. Westphal: It depends on the number of hours you get blocked in making the foreign deliveries.

Mr. Sheean: During the time you are blocked there you are waiting for an opportunity to make delivery?

Mr. Westphal: Yes, sir.

Mr. Sheean: And the pay that is running on on an hourly basis is covering the time that you are thus waiting for a chance to make that delivery?

Mr. Westphal: Yes. That keeps a man on the lookout all the time.

Mr. Sheean: Looking to see that he can get in to make delivery?

Mr. Westphal: A man has got to keep his engine prepared and a proper amount of steam and a proper amount of fire, in case they should get a sign to come ahead or to go, he has got to have his fire in the proper condition in order to get away with the train.

Mr. Sheean: But, the amount of coal that is consumed, or the amount of coal that is shoveled in the yard service, or in the transfer service, is considerably smaller than the coal consumed on a road run, is it not?

Mr. Westphal: Yes, sir.

Mr. Sheean: And it is less in the yard service, usually, than it is on a transfer run?

Mr. Westphal: A little less, yes, sir.

Mr. Sheean: Now, this differential in night and day pay with yard switchmen—that, I suppose, was in existence when you came to work for the Milwaukee?

Mr. Westphal: I don't know. I could not say.

Mr. Sheean: You don't know how many years that has been established?

Mr. Westphal: No, sir, I do not.

Mr. Sheean: The switchmen who have this difference between night and day pay in yard service, generally consist of how many men? There is the foreman and two helpers.

Mr. Westphal: Foreman and two helpers, and sometimes we have jobs there that employ about twenty-two men.

Mr. Sheean: That is, on gravity switching, is it?

Mr. Westphal: Yes, sir.

Mr. Sheean: Well, now then, these twenty-two men, where they are employed, is catching cars in motion and riding them, is it not?

Mr. Westphal: Yes, sir.

Mr. Sheean: And those men are on the ground in their work, except when they are riding cars down an incline?

Mr. Westphal: Yes, sir, they have got a name of being called "crows."

Mr. Sheean: All the men who work in the actual handling of the cars—the man in the field, the man who follows the engine, gets 2 cents an hour more for night work than for day work?

Mr. Westphal: Yes, sir; any time they start after 7:30 A. M. they get night men's pay.

Mr. Sheean: The work of those men is the actual handling of the cars in the coupling, and the uncoupling and of making ready to couple and uncouple?

Mr. Westphal: Yes, sir.

Mr. Sheean: Their work is upon the ground?

Mr. Westphal: Yes, sir.

Mr. Sheean: At night time they work with lanterns?

Mr. Westphal: Yes, sir.

Mr. Sheean: And in and about their work at night they are required to walk from one part to the other of the yard?

Mr. Westphal: Yes, sir.

Mr. Sheean: To see that the knuckles are properly set, and in seeing a coupling is to be made?

Mr. Westphal: Yes, sir; sometimes coupling up air hoses.

Mr. Sheean: Coupling up air hose?

Mr. Westphal: Yes, sir.

Mr. Sheean: And the work of these men at night is paid more than the men who do the same work in the day time?

Mr. Westphal: The same men could do the same work in

day time and receive night men's pay, providing they start before 6:30 A. M. in the morning, or after 7:30. Their work may consist of daylight, but they get the same rate of pay as the men who work nights.

Mr. Sheean: But, of course, generally, as distinguished between night and day work, and for the purpose of convenience, they have agreed upon when night work shall begin and when day work shall begin?

Mr. Westphal: Yes, sir.

Mr. Sheean: Now, this differential between night and day work, runs away back to the time when they coupled with links and pins, doesn't it?

Mr. Westphal: I couldn't tell you. I don't remember.

Mr. Sheean: So far as the engineer and fireman are concerned, I take it that the engineer running on a road running at night, has just the same difficulties about distinguishing signals that the man working in the yard would have, except they are not so numerous?

Mr. Westphal: He has got to watch the night man more so than the day, because the night man, all he can see is the lamp. If he sees the lamp go out when the man goes between the cars, he is likely to cut the man's leg off, through his carelessness.

Mr. Sheean: And the man who is there with the lamp is the man whose life is endangered?

Mr. Westphal: His life is endangered most any time going between the cars.

Mr. Sheean: And the man whose leg is endangered is the man who now has the differential in pay, rather than the man running the engine?

Mr. Westphal: Yes, sir. It also puts more work on the engineer working nights.

Mr. Sheean: Now, outside of the yard service, and outside of the switchmen who do this work on the ground with moving cars, the coupling and uncoupling, do you know of any differential between night and day pay in transportation service?

Mr. Westphal: Well, they receive night men's pay in transfer service, the same that they do in switching service.

Mr. Sheean: No, not transfer service. Some of these runs require the train crews to make up the transfer runs, and also to make some distribution at the other end.

Mr. Westphal: Yes, sir. Sometimes probably setting out a car or two in between.

Mr. Sheean: So that even on the transfer run the switchmen do have to go between cars?

Mr. Westphal: Yes, sir.

Mr. Sheean: Couple and uncouple?

Mr. Westphal: Yes, sir; right in the busy district, the Stock Yards district.

Mr. Sheean: When did you start working for the Milwaukee, Mr. Westphal?

Mr. Westphal: August 15, 1909.

Mr. Sheean: Here in Chicago?

Mr. Westphal: Yes, sir.

Mr. Sheean: You worked here all the time?

Mr. Westphal: Yes, sir.

Mr. Sheean: When you described the work done by an engine despatcher, was that here in Chicago, in one of the yards here in Chicago?

Mr. Westphal: We have two of them in Chicago.

Mr. Sheean: I am just trying to get at, Mr. Westphal, whether you had the operation in the Chicago yard in mind when you spoke of what the engine despatcher did.

Mr. Westphal: I am referring to Chicago yards only. I do not know anything of outside yards at all.

Mr. Sheean: Do they also have in the Chicago yard any engine handlers?

Mr. Westphal: No, sir. They are all hostlers or despatchers. A hostler, we refer to him as a despatcher. We don't call him a hostler at all. A hostler is a despatcher on our road.

Mr. Sheean: The Milwaukee schedule makes provision for engine despatchers?

Mr. Westphal: Yes, sir.

Mr. Sheean: Now, in Chicago, they have simply engine despatchers, no engine handlers?

Mr. Westphal: All engine despatchers.

Mr. Sheean: And how many engine despatchers are employed in this yard?

Mr. Westphal: Well, we have twelve at Western avenue; seven at Western avenue, nights; twelve, days, at Western ave-

nue. And at Galewood there are about twelve employed, days, and probably twelve or thirteen employed, nights.

Mr. Sheean: And, in addition to the twelve despatchers there, what other employes are there who have anything to do with the care of the engine between the time that it is delivered by the road crew and the time that it is again turned over to the next road crew?

Mr. Westphal: Nobody but the engine despatcher.

Mr. Sheean: Do they knock the fires?

Mr. Westphal: No, sir.

Mr. Sheean: Or build the fires?

Mr. Westphal: No.

Mr. Sheean: Who does that?

Mr. Westphal: They have men to do that.

Mr. Sheean: And do they actually do the cleaning of the pans, these despatchers?

Mr. Westphal: No, sir.

Mr. Sheean: Under the practice at this yard, do they have the same men do the work of building the fires and knocking the fires, or do they have separate men assigned for building fires and knocking fires?

Mr. Westphal: They have separate men assigned for building fires and knocking fires and cleaning ash pans; they also employ the ashpan men to clean front ends.

Mr. Sheean: What about putting on supplies?

Mr. Westphal: They have supply men who put on supplies, or are supposed to.

Mr. Sheean: That is not done by the despatcher there?

Mr. Westphal: No, sir.

Mr. Sheean: So that the despatcher in this yard here does nothing except handle the throttle?

Mr. Westphal: That is all.

Mr. Sheean: About how large is the force there that does have some part of the work of handling, and I mean by handling, giving any care or attention to the engine, between the time it comes in and the time it goes out?

Mr. Westphal: I don't understand you.

Mr. Sheean: About how many men, all told, have anything at all to do in connection with the care of the engine between the time it comes in and the time it goes out?

Mr. Westphal: There is one despatcher that is supposed to take care of that engine. There will probably be one at the coal chute; that is two; this man does nothing but coal up engines—

Mr. Sheean: I did not mean as to one engine, but the force in the Galewood yard; the entire number of men employed in the Galewood yard, whose work is in connection with the care and handling of engines. There are twelve despatchers; about what is the total number of employes whose work is something connected with the preparation or care of engines?

Mr. Westphal: You understand, the despatcher on our road does nothing but despatch engines; he is busy all day long doing nothing but hostling engines back and forth and horsing engines around the roundhouse without any air, just handling them with the reverse lever.

Mr. Sheean: About how many engines do they handle there in a day?

Mr. Westphal: At Galewood they generally average about one hundred or one hundred and twenty-five engines.

Mr. Sheean: So, when you are describing the operations where the despatcher does nothing but handle the throttle, you are speaking of a yard or a place where about one hundred and twenty-five engines a day are handled, and the work is so arranged that the despatchers do nothing but handle the throttle?

Mr. Westphal: Sometimes these men are taken off these jobs of despatching, and are sent out to make main line movements, or where they are shorthanded, they are sent to run an engine.

Mr. Sheean: In this yard, where they handle about one hundred and twenty-five engines a day, there are about twelve hostlers?

Mr. Westphal: Twelve hostlers, and then one of those twelve is chief hostler. He does nothing but dictate the work. That only leaves them but eleven men to do the work.

Mr. Sheean: Eleven despatchers. About how many fire knockers? I just want to get a picture of what the force is out there.

Mr. Westphal: There are probably three fire knockers.

Mr. Sheean: And about how many fire builders?

Mr. Westphal: I don't know about the inside roundhouse force at all, I could not say; there are probably two men, one for each half of the house.

Mr. Sheean: Could you give us any idea of about what the total force there is, in addition to the hostlers, whose work is in connection with the work of coaling and watering and putting on supplies, and everything?

Mr. Westphal: At Galewood they have two fire knockers at the switch engine pit, and probably two men to clean the ash pans and the front ends; with the one engine, with the hostler, they have about three men while the engine is on the pit.

Mr. Sheean: How many men at the coal chute?

Mr. Westphal: There is one man at the coal chute, that is, coaling the engine; I don't know how many are on the coal shed, delivering the coal up to the top, to get it into the chute; I don't know how many men are employed in that work.

Mr. Sheean: Under the Milwaukee schedule, Mr. Westphal, these engine despatchers are to be maintained at such stations or terminals as may be designated by the company, I believe?

Mr. Westphal: Yes, sir.

Mr. Sheean: And what you have been describing here is the way the work is performed by despatchers at one of the points which the company has designated as the place at which it will have despatchers?

Mr. Westphal: Yes, sir.

Mr. Sheean: That is all.

Mr. Nagel: As I understand it, seniority gives the right to choose between night and day work?

Mr. Westphal: Yes, sir.

Mr. Nagel: Do you think that the better pay for night work, two cents an hour, ever induces a senior man to prefer night work over day work?

Mr. Westphal: Well, we have now seniority men, that is old men, that are on the list, that are older than I am, that are firing nights. The reason they fire nights is because they probably get in a little more running, nights, and earn a little more money at the end of the month.

Mr. Nagel: So there are some men who prefer night work because of the amount of returns?

Mr. Westphal: Because of the amount of money, yes, sir.

Mr. Nagel: Are there many instances of that kind?

Mr. Westphal: Not very many.

Mr. Sheean: You say that you notice an increase in the cost of your household expenses?

Mr. Westphal: Yes, sir.

Mr. Nagel: Do you think that is to be attributed solely to the higher prices of provisions?

Mr. Westphal: Well, there is quite a bit of it.

Mr. Nagel: In some circles, I think it is safe to say that what was once regarded as a comfort is now treated as a necessity; do you think you notice any such improvement in the standard of living in your household?

Mr. Westphal: I have noticed the cost of living has gone up all around in my house.

Mr. Nagel: Well, do you get more for it than you used to?

Mr. Westphal: I do not think so.

Mr. Nagel: That is what I want to get at. Do you think your standard is the same as it was, say, five years ago?

Mr. Westphal: I could not say five years ago; I was not married, so I don't know about five years ago.

Mr. Nagel: How long are you married?

Mr. Westphal: I have been married just a trifle over four years.

Mr. Nagel: That will do as a test. Do you think that you live in greater comfort now than you did then?

Mr. Westphal: No, sir.

Mr. Nagel: Is your rent about the same; are your quarters about the same?

Mr. Westphal: My what?

Mr. Nagel: Are the quarters you occupy about the same?

Mr. Westphal: Well, I live in a home of my own; that is, I intend to have it my own some day; I am trying to make small payments. I find it hard to make these payments some months.

Mr. Nagel: You rented it first and now you are paying for your own home?

Mr. Westphal: No, I had a flat first.

Mr. Nagel: Well, you rented that?

Mr. Westphal: Yes, sir.

Mr. Nagel: Then it is difficult to make comparisons.

Mr. Westphal: Some months it is, and other months I get along pretty smooth.

Mr. Nagel: It is difficult to make comparisons between your early experience and your present experience?

Mr. Westphal: Yes, sir.

Mr. Nagel: In other respects, do you think you have more comfort now than you had at first?

Mr. Westphal: Well, as far as the house is concerned, I have more comfort to myself in the house, that is, I am almost sure my family has, because where we were before, we didn't have any comfort at all. Landlords, nowadays, in Chicago are getting pretty particular about having any children.

Mr. Nagel: I am a believer in the improved standard, but I simply wanted to know whether you were getting it. That is all.

RE-DIRECT EXAMINATION

Mr. Phillips: Mr. Westphal, in answer to a question by counsel for the railroads, I understood you to say that these engine despatchers or hostlers were constantly engaged in handling the throttle. Now, was it your purpose to have this Board believe that the man had his hand glued to that throttle constantly?

Mr. Westphal: No, he is not glued to that throttle—

Mr. Sheean: No, I said he did not do anything but that.

Mr. Phillips: Is it not a fact that he has a multitude of duties; that he goes from one engine to another engine, and climbs up and down, and may deliver engines out a considerable distance to some point where they are required?

Mr. Westphal: Yes, sir.

Mr. Phillips: Or, that he has to go about these fire knockers and the sand men, and coal men, and supervise the work they are doing, constantly; is not that true?

Mr. Westphal: Well, the chief despatcher generally takes care of the fire knockers, to see that they are on the job.

Mr. Phillips: The chief despatcher handles that end of it?

Mr. Westphal: Yes, sir.

Mr. Phillips: But the subordinate despatcher, or the man engaged in handling the engine, sees that it is done and he climbs up and down and looks about to assist in any way he can, from time to time and from place to place, in the handling of the engine from the time she comes in until she is out of his charge, or

from the time she comes out, until she is turned over to somebody else.

Mr. Westphal: You understand, if a man is on the job keeping this engine all the time, he has not as much work on his hands as if somebody laid down, because if he lets somebody stop work he has to look after more engines.

Mr. Phillips: I understood you to say the hostler was constantly handling the throttle, and I wanted to know if that is correct.

Mr. Westphal: Well, he is not constantly, but he is handling it the greater part of the time.

Mr. Phillips: That is, he handles it as much as is necessary in handling ten or twelve engines during his shift?

Mr. Westphal: Yes, sir.

Mr. Phillips: I understand where you have one hundred and twenty-five engines approximately, you have twelve despatchers or hostlers?

Mr. Westphal: Yes.

Mr. Phillips: And they divide them up as much as they can?

Mr. Westphal: Yes, sir.

Mr. Phillips: Some engines may require more than others?

Mr. Westphal: Yes, sir.

Mr. Phillips: And this hostler, just as an engineer running the engine, handles the throttle as much as is necessary to move the engine?

Mr. Westphal: Yes, sir.

Mr. Phillips: And handles the brake valve as much as is necessary?

Mr. Westphal: Yes, sir.

Mr. Phillips: And handles the reverse lever as much as is necessary?

Mr. Westphal: Yes, sir.

Mr. Phillips: But he does not handle any one of them constantly, does he?

Mr. Westphal: No, sir.

Mr. Phillips: Just another word about that hostler. Was it your purpose to have us understand that he did not knock fires or clean ash pans, or coal up engines, or do that work that another staff of men are employed to do?

Mr. Westphal: No, sir.

Mr. Phillips: That was your purpose?

Mr. Westphal: Yes, sir.

Mr. Phillips: That he did not do that work?

Mr. Westphal: No.

Mr. Phillips: But he handled the throttle and the reverse lever and the brake valve or any other part of the engine necessary to move it from place to place, and the work incidental thereto?

Mr. Westphal: Yes, sir.

Mr. Phillips: You said, I believe, that there had been no change in the power in the yards here, in the past four years or so?

Mr. Westphal: Well, you understand the change in the power; probably, we will have this year the majority of the C-1 engines here, they are Consolidated engines; then probably next year, or the year after, we will probably get the C-2 engine back again; they are the same engines, they are Consolidated locomotives, only they are a little heavier locomotives.

Mr. Phillips: That may vary slightly, but in the main, the type of engines has not changed in about four years.

Mr. Westphal: No.

Mr. Phillips: Do you have more of the big class now than you had formerly, do you think?

Mr. Westphal: I don't doubt but what we have a few more of the big ones, and probably a few more small ones.

Mr. Phillips: Not to any great extent?

Mr. Westphal: No.

Mr. Phillips: The ratio is about the same?

Mr. Westphal: Yes, sir.

Mr. Phillips: By reason of these larger trains which are brought in by reason of the larger engines used on the road, you get bigger trains to break up?

Mr. Westphal: Yes, sir.

Mr. Phillips: And bigger drags to move from place to place in the transfer service?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you find it is heavier work with the same engines, in moving these heavier trains, or in breaking up these drags, than it was three or four years ago?

Mr. Westphal: Yes, sir.

Mr. Phillips: You were asked if these men who were sometimes so unfortunate as to be cut off the extra list were privileged to go anywhere else to go to work. Is it not a fact that they have to find work in order to live?

Mr. Westphal: Yes, sir.

Mr. Phillips: The railroad does not pay them anything when they are laid off?

Mr. Westphal: No.

Mr. Phillips: While it reserves the privilege of calling them back in any emergency?

Mr. Westphal: No.

Mr. Phillips: But they do not pay them while they are laid off?

Mr. Westphal: No.

Mr. Phillips: But they grant them the generous privilege of working some place else?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you think when men are cut off on the Milwaukee Road, on account of depression in business, that there are many jobs open to them as railroad men, any place else?

Mr. Westphal: No, sir, very few.

Mr. Phillips: Don't you know, from your experience with railroad men, that business depressions are, as a rule, more or less general, and when a man is cut off in one place it is futile for him to look for a job at something else, in the same place?

Mr. Westphal: From what experience I have had, when business drops off on a railroad, it drops off almost any place else.

Mr. Phillips: So that, although your company gives him the privilege of working some place else, is it probable that there is no work for him to do any place else?

Mr. Westphal: I don't think so.

Mr. Phillips: You said in your direct testimony that you had been demoted—that is, set back to firing from the position of engineer which you had occupied, temporarily, from time to time. Are any younger men than you demoted?

Mr. Westphal: Yes, sir.

Mr. Phillips: How many?

Mr. Westphal: I don't know exactly, but probably fifty or sixty.

Mr. Phillips: Fifty or sixty younger men than you who were engineers are now back, firing?

Mr. Westphal: Yes, sir.

Mr. Phillips: And fifteen or so older than you, I understood you to say?

Mr. Westphal: Yes.

Mr. Phillips: Sixty-five or seventy-five in all back, firing?

Mr. Westphal: Yes, sir.

Mr. Phillips: And for every one of them at least two firemen are out of a job, who have worked at some time?

Mr. Westphal: Yes, sir.

Mr. Phillips: And they are, of course, trying to earn a living in any way they can, is that your understanding?

Mr. Westphal: Yes, sir.

Mr. Phillips: Now, in moving these drags, I believe you were asked if you did not move entirely within the limits of the Chicago switching district. Do you know the limits of the Chicago switching district?

Mr. Westphal: No, sir, I do not.

Mr. Phillips: Does it not extend thirty or forty miles or more, in various directions?

Mr. Westphal: Yes, sir.

Mr. Phillips: From one limit to the other limit?

Mr. Westphal: Our district runs probably from Bensonville clear down to Mayfair—or not Mayfair, but a station out south here.

Mr. Phillips: How far in miles?

Mr. Westphal: It is probably ten miles at least, maybe less.

Mr. Phillips: In making these moves in transfer service, are you required to use main tracks of your own railroad, or other railroads?

Mr. Westphal: Yes, sir; of all railroads.

Mr. Phillips: And in traveling a distance of ten miles, or even five miles, or even one mile, as far as that is concerned, on main line track, are you not subject to the same dangers that any man is in operating a train on the main track of a railroad?

Mr. Westphal: Yes, sir.

Mr. Phillips: When you go over to these foreign points

and find yourself waiting there, doing nothing for hours, in order to get back, just resting, have you anything to do besides looking out, while you are there?

Mr. Westphal: Yes, sir; you have to take care of your fires.

Mr. Phillips: Do you have a smoke consumer on the engines in these yards here?

Mr. Westphal: Yes, sir.

Mr. Phillips: Does that require the constant attention of the fireman?

Mr. Westphal: Yes, sir.

Mr. Phillips: Both when you are working and standing still?

Mr. Westphal: Yes, sir.

Mr. Phillips: Is there more coal burned by the engine by reason of being equipped with a smoke consumer?

Mr. Westphal: Considerably more.

Mr. Phillips: Whether standing still or running?

Mr. Westphal: Yes, sir.

Mr. Phillips: There is more fire consumed also?

Mr. Westphal: Yes, sir.

Mr. Phillips: That is on account of the blower working constantly, a very large blower pipe, using that much steam all the time?

Mr. Westphal: Yes, sir. I have fired one locomotive, a switch engine, that had a very large blower on, and the injector was working pretty fair, and with this blower working and the engine working, I had to be on the job all the time; the smoke blower was working hard, and it used the water about as fast as this injector would pump the water into the boiler.

Mr. Phillips: Do you find the company officials are more rigid since this smoke nuisance discussion has been taking place in the city of Chicago?

Mr. Westphal: Yes, sir.

Mr. Phillips: As time goes on, do you find that their rules are more rigid all the time?

Mr. Westphal: Yes, sir.

Mr. Phillips: You do not believe your company officials are unfair, do you?

Mr. Westphal: Not at all times.

Mr. Phillips: They try to treat you as fairly as they can, and abate the smoke nuisance?

Mr. Westphal: Yes, sir.

Mr. Phillips: And you are supposed to do your part to minimize the black smoke?

Mr. Westphal: Yes, sir.

Mr. Phillips: Would you be censured if black smoke was made when the engine was standing still, the same as if it was working?

Mr. Westphal: Yes, sir.

Mr. Phillips: So you have to keep the fire up and the water in the boiler, and keep it working all the time, whether moving or standing still?

Mr. Westphal: You would be censured more for the smoke while standing still than you would while moving?

Mr. Phillips: About these switchmen in danger of their lives, going between cars moving on humps or gravity yards, I do not think you, from your knowledge of railroading and the experience you have had as a railroad man, would attempt to minimize the danger of a switchman's work, would you? You realize they have a dangerous vocation?

Mr. Westphal: Yes, sir.

Mr. Phillips: Don't you think the engineers and firemen are in considerably more danger at night from a car door being open, that they could not see, or a car not quite standing in the clear, that they could see in the daytime?

Mr. Westphal: Or a car of lumber shifting.

Mr. Phillips: Or a car with planks or scantling shifting on the car, or many things that would not endanger them in the daytime?

Mr. Westphal: Yes, sir.

Mr. Phillips: This poor fellow that loses his leg, of course he suffers, but is not the engineer held strictly to account, or the fireman, if it should happen on his side, for not observing a signal, if it was the failure to get a signal which caused this accident?

Mr. Westphal: Yes, sir.

Mr. Phillips: Do you think the switchman would go between the cars without giving first the warning signal, which would protect him?

Mr. Westphal: Sometimes it is overlooked by his own crew.

Mr. Phillips: If the crew overlooked it, or the engineer or fireman overlooked it, would not the hardship fall on them, not the loss of the limb, because one man must bear that; but would not the hardship, or perhaps the discipline, fall on the fireman or engineer, or both, if the accident was due to them?

Mr. Westphal: Yes, sir; and sometimes by a man not giving signals.

Mr. Phillips: And you think that danger is greater in the night than in the daytime?

Mr. Westphal: Yes, sir, there is considerably more danger.

Mr. Phillips: I think that is all.

RE-CROSS EXAMINATION.

Mr. Sheean: You have not any doubt of the propriety of disciplining an engineer, if, in fact, as stated in the last question, through his fault a switchman's leg is taken off?

Mr. Westphal: You understand, sometimes a man will go between the cars and another man will give the signal, and if the engineer does not see the man going between the cars that accident will happen.

Mr. Sheean: Yes; I think perhaps you did not catch the last question, or did not appreciate that in that question was incorporated the suggestion that it was the fault of the engineer or fireman.

Mr. Westphal: It sometimes may be the fault of the other man, too, you know.

Mr. Sheean: Exactly, and in case it is the fault of the other man, no hardship falls upon the fireman or engineer?

Mr. Westphal: Well, they will have to go up before the officials of the company the same as the rest of the men will.

Mr. Sheean: To explain the occurrence?

Mr. Westphal: Yes, sir. I don't know what action would be taken, if they find him responsible for the accident.

Mr. Sheean: The only case in which the discipline is imposed is in case it is found that it was the fault of the engineer and fireman, is it not?

Mr. Westphal: Well, it does not make any difference whether it was the fault of the fireman or not, if they have a man

on the crew who loses his limb or his life, they must go up the same as the rest of the crew.

Mr. Sheean: You do not question that is right, either do you, that the officials ought to find out, whenever an employe's limb is taken off, how it has happened?

Mr. Westphal: I certainly do not.

Mr. Sheean: You think it is a right and proper practice?

Mr. Westphal: I surely do.

Mr. Sheean: You think that everybody ought to co-operate in trying to find out all the facts, as to how it occurred and to avoid it in the future if possible?

Mr. Westphal: Yes, sir.

Mr. Sheean: And if they find somebody at fault, that it should be disciplined, if there is anybody at fault, in fact?

Mr. Westphal: I believe a man ought to be punished if it was through his fault or his carelessness.

Mr. Sheean: So, in the end, there is not any objection on your part to aiding the officials of the company in ascertaining all the facts, and trying to find out whose fault it was?

Mr. Westphal: Not in a case of that kind, no, sir.

Mr. Sheean: When were you promoted to be an engineer, do you remember the date?

Mr. Westphal: November 19, 1913.

Mr. Sheean: And your seniority is limited to the Chicago yards?

Mr. Westphal: Yes, sir; the Chicago terminals.

Mr. Sheean: Now, since November, 1913, there have been fifty or sixty firemen, younger than you, who have also qualified as engineers?

Mr. Westphal: That have been promoted during that time.

Mr. Sheean: Since November, 1913?

Mr. Westphal: Yes, sir.

Mr. Sheean: So that opportunities for promotion here in the Chicago yards of the Milwaukee—

Mr. Westphal: Is very poor.

Mr. Sheean: What is it?

Mr. Westphal: Very poor.

Mr. Sheean: Well, but from November on, between November, 1913, down to a short time ago, fifty or sixty were actually promoted?

Mr. Westphal: The promotion is all right, but the promotion ain't there for the man that is an engineer. Their promotions ain't very favorable. What I mean is, they ain't got no near future for running an engine.

Mr. Sheean: But they have qualified for engineers, that number have qualified for engineers, fifty or sixty in the terminals of Chicago since November, 1913?

Mr. Westphal: Yes, sir.

Mr. Sheean: And you have included in the list of demoted men in the fifty or sixty, the men who have been qualified as engineers since November, 1913?

Mr. Westphal: Yes, sir.

Mr. Sheean: And all who are younger than you on the list are those who have become engineers by examination or qualification since November, 1913?

Mr. Westphal: Yes, sir. It is possible, before the summer is over, there will be a whole lot more that is older than me will be back, firing.

Mr. Sheean: Well, about how rapid—in a period of one year in Chicago, about how many firemen on the Milwaukee do you think ought to be promoted in one year's time?

Mr. Westphal: A man ought to be promoted according to the length of time he fires. We have an agreement with the company that a man who fires four years shall be promoted.

Mr. Sheean: Shall be promoted?

Mr. Westphal: Yes, sir, provided he passes the examination.

Mr. Sheean: So that these fifty or sixty men that you speak of here are men who were examined since you were examined and—

Mr. Westphal: Probably ran an engine to get their service days.

Mr. Sheean: To get their service days?

Mr. Westphal: Yes, sir.

Mr. Sheean: Then there has not been any actual demotion of those men at all, has there, but they simply—

Mr. Westphal: Well, I—

Mr. Sheean: But they have simply qualified as engineers?

Mr. Westphal: I don't know what you are trying to get at,

but these men have already run an engine. There is a majority of them that are working on the extra list, where when business drops off they will have to go back to firing.

Mr. Sheean: All I was getting at was that, since November, 1913, here in Chicago, the Milwaukee, under the agreement, has in fact examined and qualified some fifty or sixty firemen as engineers?

Mr. Westphal: Yes, sir, probably more.

Mr. Sheean: And when you speak of men demoted, it includes, or covers, simply, men who are qualified to run engines if there is business on the line that would give them work as engineers?

Mr. Westphal: Well, I figure this way; any man that is an engineer and he has to stay firing, is a man that is set back.

Mr. Sheean: Whether he in fact has ever had a job as engineer or not?

Mr. Westphal: Well, we generally figure there — the officials of our company generally figure giving a man a service date.

Mr. Sheean: Well, just that one service date.

Mr. Westphal: Some have only got one day.

Mr. Sheean: Well, you consider that man as a demoted man for every day he fires after he has taken his examination and has had one day running an engine?

Mr. Westphal: Yes, sir.

Mr. Sheean: Now, you speak of the transfer runs being heavier. In taking cars from one road to a foreign road, those transfers are usually made every day there at stated intervals, aren't they?

Mr. Westphal: Every day occurrence.

Mr. Sheean: And whether the transfer run is heavy or light depends entirely on how many cars you have for that foreign road, doesn't it?

Mr. Westphal: Yes, sir; some days we have heavier trains than we do others.

Mr. Sheean: And the train, from day to day, is simply dependent on how many cars come in on your line for delivery to some other line?

Mr. Westphal: Yes, sir.

Mr. Sheean: That is all.

Mr. Byram: You spoke of a rule which required the promotion of firemen to the position of engineer after four years. Is that a rule in your schedule?

Mr. Westphal: I believe it is in our schedule.

Mr. Byram: That the company must promote the fireman after he has been firing for four years?

Mr. Westphal: I don't know that it says they "must." It is just a little agreement they have got.

Mr. Byram: That is what I mean. It is either they shall do it or they shall not. You say they shall do it?

Mr. Westphal: They shall do it. If the man is in condition to do so.

Mr. Byram: Well, then, was the promotion of the fifty or sixty firemen during this last year due to the operation of that rule?

Mr. Westphal: Yes, sir.

Mr. Byram: Well, then, the company had to promote them?

Mr. Westphal: Yes, sir.

Mr. Byram: And the promotion was simply a formality to comply with the agreement that the company has with the men?

Mr. Westphal: Yes.

Mr. Byram: And that has occasioned the condition which you complain of?

Mr. Westphal: Yes, sir.

Mr. Byram: Which is a rule that you men have agreed to with the company?

Mr. Westphal: Yes, sir.

Mr. Byram: And that has created a condition that is unsatisfactory to you?

Mr. Westphal: Yes.

Mr. Park: Mr. Westphal, you speak about the risks of the position. What do the switchmen go between the cars for?

Mr. Westphal: What do switchmen what?

Mr. Park: What does the switchman go between the cars for?

Mr. Westphal: Sometimes to adjust knuckles and couple up air hoses.

Mr. Park: The cars are all equipped with safety appliances?

Mr. Westphal: Well, we have a majority of our cars equipped that way. We have some still moving around that ain't.

Mr. Park: Your engines are equipped with headlights on the tank and the front end?

Mr. Westphal: Our yard engines; yes, sir.

Mr. Park: That is all.

ROY GILMAN was called as a witness and, having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: State your full name and place of residence, Mr. Witness.

Mr. Gilman: Roy Gilman, Minneapolis, Minnesota.

Mr. Phillips: What is your occupation, Mr. Gilman?

Mr. Gilman: Yard fireman.

Mr. Phillips: By what railroad are you employed?

Mr. Gilman: The Great Northern.

Mr. Phillips: In the Minneapolis yard?

Mr. Gilman: Yes, sir.

Mr. Phillips: How long have you worked for that company?

Mr. Gilman: Since 1904.

Mr. Phillips: You entered the service of the company as a yard fireman in 1904?

Mr. Gilman: Yes, sir.

Mr. Phillips: Have you road rights, or are your rights confined to yard service?

Mr. Gilman: Yard service and transfer service.

Mr. Phillips: Yard and transfer service?

Mr. Gilman: Yes, sir.

Mr. Phillips: Have you worked in both day and night service?

Mr. Gilman: Yes, sir.

Mr. Phillips: Which do you prefer?

Mr. Gilman: Day service.

Mr. Phillips: If a differential of two cents per hour were

granted to firemen, the same as to other men in your service, and the hours of service were the same length, would you prefer night work?

Mr. Gilman: No, sir.

Mr. Phillips: You do not think that would be sufficient differential to warrant you in accepting night employment?

Mr. Gilman: No, sir.

Mr. Phillips: How many hours a day do you work, Mr. Gilman?

Mr. Gilman: Well, on transfer we work on an average from fourteen to fifteen hours and a half.

Mr. Phillips: Are you on transfer service at the present time?

Mr. Gilman: Yes, sir.

Mr. Phillips: How far do you run in your transfer work?

Mr. Gilman: Well, from Clearwater Junction to Como, twelve miles.

Mr. Phillips: A distance of about twelve miles?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you transfer between the two cities, Minneapolis and St. Paul?

Mr. Gilman: Yes, sir.

Mr. Phillips: And you are now on that night transfer job?

Mr. Gilman: Yes, sir.

Mr. Phillips: Are the rates for transfer service higher than for ordinary yard service?

Mr. Gilman: They are on this one transfer.

Mr. Phillips: On just one transfer?

Mr. Gilman: On the transfer I am on now; yes, sir.

Mr. Phillips: What rates do you get on that job?

Mr. Gilman: We get through freight rates on that job.

Mr. Phillips: Is that your reason for taking that job?

Mr. Gilman: Yes.

Mr. Phillips: Do you exercise your seniority preference?

Mr. Gilman: Yes, sir.

Mr. Phillips: Because of the higher rate of pay?

Mr. Gilman: Yes, sir.

Mr. Phillips: If the rates of pay were the same you would prefer yard work, would you not?

Mr. Gilman: Yes, sir.

Mr. Phillips: If the hours of service were the same and the rates identical, you would prefer day work in the yard, to night work, either yard or transfer, or transfer in any event?

Mr. Gilman: Yes, sir.

Mr. Phillips: Now, in your work of fourteen or fifteen or sixteen hours on this transfer job, how long are you away from your home?

Mr. Gilman: Seventeen hours.

Mr. Phillips: That is, counting the time from the time you leave home, including your day's work and the time necessary to return to your home, is an aggregate of about seventeen hours?

Mr. Gilman: I think so, yes, sir.

Mr. Phillips: And then you must get your rest in the day time?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you find it disagreeable or uncomfortable trying to secure a rest in the day time?

Mr. Gilman: Yes, sir.

Mr. Phillips: Does it discommode your family and your household by having part of the family trying to sleep in the day time?

Mr. Gilman: Yes.

Mr. Phillips: It makes the whole house like a morgue, doesn't it?

Mr. Gilman: Yes.

Mr. Phillips: Do you have any opportunity for enjoyment or recreation when working on a job of this character?

Mr. Gilman: No, sir, not unless I lay off.

Mr. Phillips: Do you lay off from time to time?

Mr. Gilman: I have to.

Mr. Phillips: Why?

Mr. Gilman: I can't stand the work.

Mr. Phillips: You could not stand it to work that number of hours every day in the month?

Mr. Gilman: No, sir.

Mr. Phillips: Well, in addition to that, would you have an opportunity to go to church or to a moving picture show, or any place that a fireman might wish to indulge in, if you worked such hours as you have described, continuously?

Mr. Gilman: No, sir.

Mr. Phillips: Do you consider night work more dangerous than day work?

Mr. Gilman: Yes, sir.

Mr. Phillips: Why do you say that, Mr. Gilman?

Mr. Gilman: Well, you have more to look out for. In day time you can see where you are going, at night time you cannot. In the day time you can see whether cars clear or whether they do not clear or whether somebody is shoving in at the other end of the track that will corner you, or whether the cars will clear at that end. At night, you cannot see that until you are right on top of them.

Mr. Phillips: Is it more difficult in stormy weather or foggy weather?

Mr. Gilman: Yes, sir.

Mr. Phillips: Does stormy or foggy weather or a blizzard, as you sometimes have in Minnesota, add to the hazard of night work?

Mr. Gilman: Yes, sir.

Mr. Phillips: Makes it even more dangerous?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you think more so than in the daytime?

Mr. Gilman: Yes, sir.

Mr. Phillips: Very much more?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you think that is the common belief of railroad men?

Mr. Gilman: I do.

Mr. Phillips: Most men prefer day work to night work, do they not?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you think any man would take night work if it was not for the fact that it either pays a higher rate of pay or gives opportunity to work longer hours or that he cannot get a job in the day time?

Mr. Gilman: No, sir.

Mr. Phillips: You don't think they would take night work at all?

Mr. Gilman: No, sir.

Mr. Phillips: Is there any difference in the cost of living in Minneapolis?

Mr. Gilman: Why, there is, yes, sir; about the same as everywhere else.

Mr. Phillips: About the same as has been stated by other witnesses here?

Mr. Gilman: Yes, sir.

Mr. Phillips: You have heard the testimony of some of the other witnesses, have you?

Mr. Gilman: Yes, sir.

Mr. Phillips: You believe, and it is your experience in a general way, the increases in Minneapolis are similar to those testified to as being in effect in other parts of the country?

Mr. Gilman: Yes, sir.

Mr. Phillips: How much money are you able to earn in yard service, working for the Great Northern Railway Company, in Minneapolis?

Mr. Gilman: Do you mean by that, switch engine service?

Mr. Phillips: In switch engine service, yard service.

Mr. Gilman: Well, by working thirty days a month, ten hours a day, a switch engine fireman can make between $70 and $75.

Mr. Phillips: What is your rate per day?

Mr. Gilman: $2.50 for ten hours.

Mr. Phillips: $2.50 per day of ten hours?

Mr. Gilman: Yes, sir.

Mr. Phillips: Overtime at the same rate per hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: 25 cents per hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do your jobs, many of them, work more than ten hours?

Mr. Gilman: No, they average about ten hours—ten to eleven hours.

Mr. Phillips: Do you work continuous time?

Mr. Gilman: No, sir.

Mr. Phillips: Is one hour deducted for the meal hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: How much of that hour would you have to work to be entitled to pay for the meal hour?

Mr. Gilman: Past 12:15—well, you would have to work until 12:20.

Mr. Phillips: You are entitled to a meal hour between what hours?

Mr. Gilman: 12 and 1. The sixth hour is supposed to be the meal hour.

Mr. Phillips: The sixth hour?

Mr. Gilman: The sixth hour, yes, sir.

Mr. Phillips: If you went to work at 7 A. M., from 12 to 1 would be the sixth hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: Must you be given that full hour in order to not be paid for the meal hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: You are then given the full hour?

Mr. Gilman: Yes, sir.

Mr. Phillips: If you are worked until 12:20 you would be paid for the hour, and then how much time would you get?

Mr. Gilman: Thirty minutes.

Mr. Phillips: You would be given thirty minutes?

Mr. Gilman: Yes, sir.

Mr. Phillips: And that has always been the condition since you have worked in the yard there?

Mr. Gilman: No, sir.

Mr. Phillips: What was the former condition?

Mr. Gilman: That we got continuous time.

Mr. Phillips: Were you then given time to eat—time for your meals?

Mr. Gilman: Yes, sir.

Mr. Phillips: Were you able to make more money, under a lower rate of pay, when you worked continuous time than you are under the present arrangement, where the hour is deducted for meals?

Mr. Gilman: Yes, sir.

Mr. Phillips: That is all.

CROSS EXAMINATION.

Mr. Sheean: When was the present rule installed on the Great Northern by which you are given one full hour for the meal but in case you work any part of the designated time you are paid for it—when was that rule put in the schedule?

Mr. Gilman: Do you mean when they took the noon hour away from us—continuous time?

Mr. Sheean: No, when the present rule was put in; the rule you are working under now.

Mr. Gilman: I think it was in 1912.

Mr. Sheean: About 1912?

Mr. Gilman: I think so; I would not say for sure.

Mr. Sheean: Well, are you able to give us the wording of the rule that existed before the present rule was installed?

Mr. Gilman: I don't know that I am. I haven't got my schedule with me.

Mr. Sheean: I don't care, Mr. Gilman, particularly about that, except to find out about the time that the rule was changed. The schedule which just preceded the present schedule gave the former meal hour rule, and the present schedule gives the present meal hour rule?

Mr. Gilman: Yes, sir.

Mr. Sheean: The one just preceding this is the one to which you referred as being the one under which you earned more money?

Mr. Gilman: Yes, sir.

Mr. Sheean: In order that the company may escape paying you for the meal hour, you must be actually relieved between 11:45 and 12:15, must you not?

Mr. Gilman: Yes, sir.

Mr. Sheean: They have just that one-half hour in which to lay you off for one full hour?

Mr. Gilman: Yes, sir.

Mr. Sheean: If they do that in that short limit of one-half hour and you take the one hour, then the company does not pay for the hour?

Mr. Gilman: No, sir.

Mr. Sheean: But if you do work as late as 12:20 or 12:16, then the company must pay you for the entire meal hour?

Mr. Gilman: Yes, sir.

Mr. Sheean: And must also give you one-half hour of that free hour to get your meal?

Mr. Gilman: Yes, sir.

Mr. Sheean: So that, reporting for work at 7 o'clock in the morning, and working until 12:20, then being released from

12:20 until 12:50, you are through your day's work of ten hours at what time?

Mr. Gilman: From 7 in the morning, did you say?

Mr. Sheean: Yes.

Mr. Gilman: 7 A. M.

Mr. Sheean: Yes.

Mr. Gilman: Well, it would be 6 o'clock, 6 P. M.

Mr. Sheean: If they released you at 6 P. M. and you got your lunch hour from 12:30 to 12:50, they would pay you eleven hours?

Mr. Gilman: Yes, sir.

Mr. Sheean: In any case, where they run beyond 12:15, you are paid eleven hours for that day?

Mr. Gilman: Yes, sir.

Mr. Sheean: Now, are you, at the present time, on this twelve hour transfer run that you described?

Mr. Gilman: Yes, sir.

Mr. Sheean: From Clearwater to Como?

Mr. Gilman: Yes, sir.

Mr. Sheean: How many trips a day do you make there?

Mr. Gilman: Two round trips a night.

Mr. Sheean: Two round trips a night?

Mr. Gilman: Yes, sir.

Mr. Sheean: So that the total miles you run is 48 miles in 14 to 15½ hours?

Mr. Gilman: Yes, sir.

Mr. Sheean: And on that run, where you work the 15½ hours, what are you paid?

Mr. Gilman: $3.55 a hundred, the through freight rate.

Mr. Sheean: Well, you say the average time is 14 hours. What would you be paid for the 14 hours—14 to 15½ hours?

Mr. Gilman: Around five dollars.

Mr. Sheean: Five dollars?

Mr. Gilman: Yes, sir.

Mr. Sheean: Is that run on a double track railroad?

Mr. Gilman: Yes, sir.

Mr. Sheean: You are on your own rails?

Mr. Gilman: Yes, sir.

Mr. Sheean: You are running between two of your own yards, the Great Northern yards?

Mr. Gilman: Yes, sir.

Mr. Sheean: Block signal all the way?

Mr. Gilman: Not on the freight tracks, no.

Mr. Sheean: Then you have separate tracks for the freight trains?

Mr. Gilman: Freight and passenger tracks are separate; yes, sir.

Mr. Sheean: Then it is a four-track railroad there, is it?

Mr. Gilman: Yes, sir.

Mr. Sheean: And, in addition to running on your own rails, it is a double-track freight operation?

Mr. Gilman: Yes, sir.

Mr. Sheean: Now, you say you lay off, from time to time, on this transfer run, and that every time that you work the 14 or 15 hours you get about five dollars for it?

Mr. Gilman: Yes, sir.

Mr. Sheean: So that if you work 20 days a month out of the 30, on that you would be getting $100 a month?

Mr. Gilman: Yes, sir. We don't work Sundays on that run. They don't run on Sundays.

Mr. Sheean: It doesn't run on Sundays?

Mr. Gilman: No, sir.

Mr. Sheean: Then, if in addition to all of the Sundays in a month, you laid off another day each week, the entire period laid off, every Saturday and every Sunday, the run would pay you about $100 a month?

Mr. Gilman: Yes, sir.

Mr. Sheean: Now, to make this 12-mile journey, even on this double-track railroad, or four-track railroad, just how long are you between your starting from Clearwater until your return to Clearwater Junction? That is a matter of considerable uncertainty, isn't it?

Mr. Gilman: Well, we don't get blocked but very seldom.

Mr. Sheean: How long is it going to take you to make a delivery—can you figure it to a certainty or with any degree of certainty, how long the round trip is going to take?

Mr. Gilman: Oh, we have some idea. It all depends on what time we leave Clearwater.

Mr. Sheean: About how long does it take ordinarily to make the round trip?

Mr. Gilman: Do you mean after we get our train together and start for Como?

Mr. Sheean: Yes, until you get back again; or do you break the train up at Como?

Mr. Gilman: We have to do all of our own switching at two different junctions; at Clearwater and Minneapolis Junctions we have to do our own switching.

Mr. Sheean: Is this Minneapolis Junction another yard belonging to the same company?

Mr. Gilman: Yes, sir. That is between Clearwater and Como.

Mr. Sheean: Then, in fact, what you do there is to take from one yard of a single railroad company, assemble by switching, a certain train, take it on the tracks of the same railroad to another yard of the same railroad company, and then switch that same train there?

Mr. Gilman: Yes, sir.

Mr. Sheean: And the total time that you are on duty, about how long does it take you to make this 12-mile run that you speak of, from Clearwater to Como, after your train is made up?

Mr. Gilman: About four hours.

Mr. Sheean: About four hours?

Mr. Gilman: Yes, sir.

Mr. Sheean: For each round trip, is that?

Mr. Gilman: I think that would be about it.

Mr. Sheean: Well, that is a speed of about six miles an hour running time, is it not, 12 miles over and 12 miles back?

Mr. Gilman: Of course, you cannot go on your speed with the cars you get.

Mr. Sheean: You think the actual running time there is about four hours on each trip?

Mr. Gilman: I should think that would be right, yes, sir.

Mr. Sheean: Now, then, during the four hours that you are running there on this double track railroad, you are not encountering any of the dangers that you have described here that are incident to night switching—you are out on the main line?

Mr. Gilman: Well, we are on the main line, yes, sir.

Mr. Sheean: On two round trips you put in eight hours of work on the main line, would that be it?

Mr. Gilman: Yes, sir.

Mr. Sheean: When you speak of the men preferring day work to night work, I suppose that obtains to road engineers, whether in passenger or freight service, that they would rather have a daylight run than a night run?

Mr. Gilman: I could not state for the road men.

Mr. Sheehan: You have had no experience?

Mr. Gilman: Not very much, no, sir.

Mr. Sheean: Do your seniority rights extend to the road or is there special seniority?

Mr. Gilman: Special seniority. I am just in the yard and transfer service.

Mr. Sheean: So a person entering the yard transfer service retains simply his rights in that particular service?

Mr. Gilman: Yes, sir.

Mr. Sheean: In the work in the yard—you have worked nights in the yards?

Mr. Gilman: Yes, sir.

Mr. Sheean: Is it the custom on the Great Northern for the man in the field or the man giving the signals for the movement of the engine, to be on the engineer's side?

Mr. Gilman: Well, where it is practicable, yes.

Mr. Sheean: Wherever practicable, and in the practical operation in the yards, about what proportion of the time would you say the switching is done upon signals given on the engineer's side?

Mr. Gilman: Well, in the majority of the yards it would be on the engineer's side.

Mr. Sheean: So that the question of moving any engine back or forth is ordinarily done upon signals communicated directly to the engineer?

Mr. Gilman: Ordinarily, yes, sir.

Mr. Sheean: It is the exceptional case, isn't it, in the yard work, that the fireman even has in his sight the man who is working in the field?

Mr. Gilman: That is, in our yard, yes, sir.

Mr. Sheean: That is the only yard as to which you have had any experience?

Mr. Gilman: Yes, sir.

Mr. Sheean: So that the responsibility, in so far as there is responsibility, for being careful not to injure the men who are on the ground and doing the work, is largely the responsibility of the engineer?

Mr. Gilman: Yes, it is on his side.

Mr. Sheean: Well, it is on his side in a great majority of the cases, isn't it?

Mr. Gilman: Well, yes; but you must understand that the fireman has always got to be on the lookout, in case he cannot get the pin, he would be on your side. He is just as liable to be on my side as the engineer's side. You cannot tell when he will get the pin or when he won't get the pin.

Mr. Sheean: What has your practical observation been, that, as a matter of fact, the man in the field is on the engineer's side or is on the fireman's side, in switching?

Mr. Gilman: He is on the engineer's side as far as practicable, yes. Of course, sometimes—

Mr. Sheean: In the yards, as you have the yards arranged, and in the yard in which you work, so far as the practical end of it is concerned, in what proportion of the time, so far as practicable, would he be on the engineer's side?

Mr. Gilman: Most of the time.

Mr. Sheean: Most of the time?

Mr. Gilman: Yes.

Mr. Sheean: That is all.

RE-DIRECT EXAMINATION.

Mr. Phillips: I understood you to say, on this particular transfer job on which you worked, you put in around fourteen to fifteen and a half hours a day?

Mr. Gilman: Yes, sir.

Mr. Phillips: Does that include any preparatory time?

Mr. Gilman: Thirty minutes preparatory time on that engine.

Mr. Phillips: Any time after you are relieved, after your day's work is ended?

Mr. Gilman: No, sir.

Mr. Phillips: So about fifteen hours would be the ordinary time, including the preparatory time?

Mr. Gilman: Yes, sir.

Mr. Phillips: Now, if you worked twenty days at that rate, fifteen hours a day, that would be 300 hours in a month, or 30 days, would it not?

Mr. Gilman: Yes, sir.

Mr. Phillips: Of ten hours a day?

Mr. Gilman: Yes, sir.

Mr. Phillips: In order to earn the $100 a month?

Mr. Gilman: Yes, sir.

Mr. Phillips: The Great Northern Railway pays to its firemen road rates for that service, does it not?

Mr. Gilman: Yes, sir.

Mr. Phillips: Do you believe that the transfer service should pay road rates?

Mr. Gilman: I do, yes, sir.

Mr. Phillips: Do you know whether, in the request submitted to this Board for arbitration, there is a request for a differential as between night and day service in road service?

Mr. Gilman: Well, I would not say.

Mr. Phillips: Well, now, if road freight rates were granted to transfer service by this Board of Arbitration, and it is a fact that no differential is requested as between day and night work in road freight service, there would be no differential in transfer service, would there?

Mr. Gilman: No, sir.

Mr. Phillips: You were asked by counsel for the railroads whether a fireman ever had to look out—if a majority of the signals were not passed from the engineer's side. I understood you to say that in most cases signals were given on the engineer's side. Is that true?

Mr. Gilman: Yes, sir.

Mr. Phillips: Does that relieve the fireman from looking out constantly on his side?

Mr. Gilman: No, sir.

Mr. Phillips: If one signal out of one hundred was on the fireman's side and he missed that signal, would he be relieved from responsibility?

Mr. Gilman: No, sir.

Mr. Phillips: That is all.

The Chairman: You may stand aside. Call your next witness.

Mr. Phillips: I will call Mr. Smith.

C. N. SMITH was called as a witness and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: State your full name and place of residence.

Mr. Smith: C. N. Smith, St. Louis.

M. Phillips: What is your occupation?

Mr. Smith: Locomotive fireman.

Mr. Phillips: By what railroad are you employed?

Mr. Smith: The Terminal Railroad Association of St. Louis.

Mr. Phillips: That is sometimes known as the Merchants Bridge & Terminal Association?

Mr. Smith: Yes, sir, it is a combination.

Mr. Phillips: It is the Terminal Company of St. Louis that handles a great deal of the business in that city?

Mr. Smith: Yes, sir.

Mr. Phillips: Have you any line of main track that gives you what are commonly called road rights in railroad service?

Mr. Smith: We have no road rights, but we have a main line track that we work over.

M. Phillips: You run over main line tracks within terminal limits?

Mr. Smith: Yes, sir.

Mr. Phillips: Main tracks of other roads or main tracks of the Terminal Railroad, but you have no trunk lines or main lines running outside to other cities, distant cities—it is a strictly transfer or switching road?

Mr. Smith: Strictly transfer, I should say.

Mr. Phillips: Have you fired engines in both transfer service and in switching service?

Mr. Smith: Yes, sir.

Mr. Phillips: Which do you prefer?

Mr. Smith: I prefer what is known as yard service.

Mr. Phillips: Yard switching?

Mr. Smith: Yes, sir.

Mr. Phillips: Why?

Mr. Smith: Under the conditions we work under, it is more convenient for a man's living conditions, and the work is lighter, and the yard work is claimed by the older seniority men.

Mr. Phillips: Men oldest in service take the yard work as a preference, do they?

Mr. Smith: Yes, sir.

Mr. Phillips: What are the rates of pay for firemen where you are working, Mr. Smith?

Mr. Smith: 26½ cents per hour.

Mr. Phillips: For all engines?

Mr. Smith: All engines.

Mr. Phillips: And in all services?

Mr. Smith: In all services.

Mr. Phillips: Well, in this transfer service do you have to go any considerable distances with trains?

Mr. Smith: We have different transfer runs. The longest is about 11 or 12 miles.

Mr. Phillips: And you cross the river, do you, to go to East St. Louis, in your work, part of it?

Mr. Smith: Yes, sir.

Mr. Phillips: You go from St. Louis to East St. Louis?

Mr. Smith: Yes, sir.

Mr. Phillips: Do you have to go through a tunnel?

Mr. Smith: Yes, sir, to East St. Louis.

Mr. Phillips: Do you have to handle both freight and passenger trains?

Mr. Smith: Yes, sir.

Mr. Phillips: Certain of your engineers and firemen handle both freight trains and passenger trains from East St. Louis to St. Louis, and vice versa?

Mr. Smith: Yes, sir.

Mr. Phillips: Do these terminal engineers and firemen take those passenger trains as they come in or as they are going out, and deliver them into the Union Station if coming in, or deliver them across the river if going out?

Mr. Smith: Yes, sir.

Mr. Phillips: Well, in your opinion, do you consider those engineers and firemen have to be as well qualified to handle passenger trains as road engineers and firemen?

Mr. Smith: Yes, sir. They have the same conditions.

Mr. Phillips: Are your engines equipped in the same manner as road engines, with the high speed brake and air whistle and everything necessary to the handling of a first-class passenger train?

Mr. Smith: We have the high speed air pressure for the brake in the engine. We have what are called high speed brakes. We have all the latest air brake equipment on the engines, but so far as the brakes go, we have not got high speed brakes, that is, on the pony trucks or the engine trucks.

Mr. Phillips: Do you handle the trains with the same pressure, 110 pounds pressure on the train line, as on the road?

Mr. Smith: Yes.

Mr. Phillips: You have the air whistle equipment, so you must understand the signals?

Mr. Smith: Yes, sir.

Mr. Phillips: The same as road engineers and firemen?

Mr. Smith: Yes, sir.

Mr. Phillips: Has there been any change in the type or size of the engine used by the Bridge Terminal Association in recent years?

Mr. Smith: In the last three or four years they have purchased 25 larger engines.

Mr. Phillips: Larger engines?

Mr. Smith: Yes, sir, larger engines.

Mr. Phillips: Switch engines?

Mr. Smith: Yes, sir. They are used for switch and transfer work.

Mr. Phillips: How heavy are those engines?

Mr. Smith: The lighter are rated at 183,000 pounds on drivers, up to 201,000 pounds.

Mr. Phillips: There are two classes of the heavy engines, then, do I understand?

Mr. Smith: Two classes.

Mr. Phillips: And one weighs a hundred and eighty thousand odd pounds on drivers?

Mr. Smith: Yes, sir.

Mr. Phillips: The other slightly over 200,000 pounds?

Mr. Smith: Yes, sir.

Mr. Phillips: Are your switch engines the type that has the six-wheel connected truck?

Mr. Smith: Yes, sir.

Mr. Phillips: No pony trucks or trailers?

Mr. Smith: No, sir.

Mr. Phillips: What was the type of engine in general use there before these larger engines were adopted?

Mr. Smith: They had many different types, from the type of twenty years ago to the type up to five years ago, which was about 140,000 pounds on drivers.

Mr. Phillips: All smaller engines, in the main?

Mr. Smith: All smaller.

Mr. Phillips: Was the rate of pay which is now paid for these larger engines fixed for a class of engines much smaller than the larger type?

Mr. Smith: Yes, sir.

Mr. Phillips: And the rate is the same for all engines?

Mr. Smith: All the same.

Mr. Phillips: Have you worked both days and nights in your work as a fireman?

Mr. Smith. Yes, sir.

Mr. Phillips: Do you experience the same difficulty and have you the same general objections to working nights that has been expressed by other witnesses here?

Mr. Smith: About, I should say, 96 per cent of our men prefer the day work.

Mr. Phillips: About 96 per cent?

Mr. Smith: Yes.

Mr. Phillips: Do the others prefer night work because they can work more steadily, or because the other men do not want them and it gives them more steady employment?

Mr. Smith: The balance prefer night work, I expect, on account of living conditions principally.

Mr. Phillips: Inconvenient getting down so early in the morning?

Mr. Smith: Yes, sir.

Mr. Phillips: And inconvenient going home late at night?

Mr. Smith: Yes.

Mr. Phillips: So they prefer to come down late in the afternoon and go home after the night job to coming down early

in the morning, after the street cars and other means of transportation are available?

Mr. Smith: Yes, sir.

Mr. Phillips: In the main, it is your understanding that day work is preferable to night work to most men?

Mr. Smith: Much more so, yes, sir.

Mr. Phillips: That is on account of the dangers and the broken rest and the other things you have heard mentioned by the other witnesses?

Mr. Smith: Yes, sir.

Mr. Phillips: That has been your experience, the same as others?

Mr. Smith: Yes, sir.

Mr. Phillips: How much are you able to earn, Mr. Smith, as a fireman, working for the Terminal Railroad Association?

Mr. Smith: As a man entitled to regular work, I am one of the oldest men and I am entitled to work every day of the month, twelve hours a day, which, at that rate, pays $95.40, a thirty-day month.

Mr. Phillips: How many hours a day?

Mr. Smith: 12 hours a day. That is 360 hours a month.

Mr. Phillips: Do you get continuous time—no deduction for the meal hour?

Mr. Smith: If they run the engines to the shop before 12 o'clock noon or midnight, we lose a half hour for meals; but if we keep the engines out in the yards, in the field, as they call it, we are allowed the straight time for looking after the engines.

Mr. Phillips: In addition to this 12 hours for which you are paid, do you work any preparatory time?

Mr. Smith: Yes, sir; we put in time getting the engines ready.

Mr. Phillips: How much time do you spend, ordinarily?

Mr. Smith: It will take a man, under ordinary conditions, thirty minutes to get an engine out of the shop.

Mr. Phillips: Are you required to be on duty thirty minutes before time for your pay to begin?

Mr. Smith: We are required to be on the engine fifteen minutes before the leaving time, but the men make it a practice and it is very necessary that they get on the engine thirty min-

utes before the leaving time, otherwise there would be a delay and reports and discipline.

Mr. Phillips: A fireman could not make the necessary inspection and do what work is required of him in the fifteen minutes allotted to him?

Mr. Smith: No, sir.

Mr. Phillips: So they make it a point to be there even earlier than that in order to get the work done, so there will be no delay on the engine.

Mr. Smith: Yes.

Mr. Phillips: Do you maintain an extra list of firemen where you are working?

Mr. Smith: Yes, sir.

Mr. Phillips: Is that extra list larger or smaller now than ordinarily?

Mr. Smith: It is smaller now. It has been reduced in the past year.

Mr. Phillips: Do you mean a smaller number of men are on the extra list now than a year ago?

Mr. Smith: Yes, sir.

Mr. Phillips: Are more men working now or less men working now than a year ago?

Mr. Smith: On the extra list or all together?

Mr. Phillips: Regularly.

Mr. Smith: Why, there are less men working regularly and less men working extra than a year ago.

Mr. Phillips: Then the regular work has decreased and the requisite number of extra men has decreased correspondingly, is that correct?

Mr. Smith: Yes, sir.

Mr. Phillips: How are your extra men handled, Mr. Smith? What are the rules of your company in handling extra men?

Mr. Smith: Extra men are required to report once every twenty-four hours, between 5 and 5:30 P. M. In a few instances, on special runs, a few are required to report earlier, but in the majority of cases the men are required to report at the road foreman of engine's office, on the terminal railroad, in time to catch what we call the caboose run, that takes the men to their different assignments, and at the earliest run, leaves at 5:20

P. M., and the second run, which is a passenger train to East St. Louis, leaves at 5:30 P. M.

Mr. Phillips: And these two runs, the caboose run, or the passenger run, to which you refer, distribute the men around—both the regular men and such extra men as are needed—to the different points within the terminal limits where they will be required to go to work?

Mr. Smith: Yes.

Mr. Phillips: And men are required to report there at 5 o'clock, or thereabouts, to go out on a 5:10 delivery—you may say a train that is going to deliver, but their pay would not begin until 6 o'clock, or such time as they are required to go to work in the yard.

Mr. Smith: 6 o'clock.

Mr. Phillips: Are these extra men paid anything when there is no work for them, and they report there?

Mr. Smith: No.

Mr. Phillips: But the company rules require them to report daily at or about 5 P. M., to be on hand in case the services of any of them are required?

Mr. Smith: That is, the company rules, but in some cases the men do call up by telephone, and if the clerk thinks they will not need them that night, they give them individual permission to lay off.

Mr. Phillips: That is, if—I would assume, Mr. Smith, then, that if there were twenty-five men on your extra list, and the lower ten men, we will say, or one of the lower ten men, asked permission to lay off, leaving fifteen men above him to fill any vacancies that might occur, a clerk might authorize him to lay off without requiring him to come to the roundhouse?

Mr. Smith: Yes, if he was sure he was not going to use the man.

Mr. Phillips: But otherwise he would be required to report?

Mr. Smith: Yes.

Mr. Phillips: Would there be any expense to that, carfare or any other incidental expenses, getting down to report?

Mr. Smith: If he is required to report to the office there is carfare, and also his lunch expense.

Mr. Phillips: And if not used, he would get no compensation whatever?

Mr. Smith; No, sir.

Mr. Phillips: How many report from day to day and are not used?

Mr. Smith: Well, it varies. I should say, under the present industrial conditions, that about one-half of the men that have been reporting, I should say about 40 per cent of the men that have been reporting, are not used that night, although some may be used the next morning, at 6 o'clock in the morning, and some are not used at all. Now, the extra men, generally speaking, in the past years have been making about half time. They work about half of what a regular man would work.

Mr. Phillips: That is, about half of the men working. That is, the extra men are making about half time, but are required to report every day?

Mr. Smith: Yes, sir.

Mr. Phillips: Are you an extra man, Mr. Smith?

Mr. Smith: No.

Mr. Phillips: You are able to hold regular time?

Mr. Smith: Yes, sir.

Mr. Phillips: Days or nights?

Mr. Smith: I work nights.

Mr. Phillips: By preference, or by force of circumstances?

Mr. Smith: It fits my conditions better, as I live in a distant part of the city and the street car service is not reliable, and for that reason, sooner than take the chances of getting the early morning cars, I work at night, and I also can hold a better job at night, on account of my seniority, than I could if I worked days.

Mr. Phillips: You could not hold a desirable job daytimes?

Mr. Smith: Not as good as night.

Mr. Phillips: And if you could, would you prefer day work?

Mr. Smith: I would, providing that I could get to and from my work, reliably.

Mr. Phillips: Now, this transfer work that you talk about, that you said something about a few moments ago, do you have to move some long strings of cars, box cars, freight cars, in transferring from one point to another, or across the river?

Mr. Smith: Yes, sir.

Mr. Phillips: And are you governed by train orders or block signals in making those movements?

Mr. Smith: Block signals.

Mr. Phillips: By block signals?

Mr. Smith: Yes.

Mr. Phillips: Do you find the work much harder in moving those heavy cuts of transfers, of cars—trains, practically they are—find that harder than what is commonly known as the yard switching?

Mr. Smith: Yes, it is what is considered heavy work.

Mr. Phillips: And you believe that a higher rate of pay should be paid for that work than for ordinary yard switching?

Mr. Smith: Yes, sir, I certainly do.

Mr. Phillips: That is all.

CROSS EXAMINATION.

Mr. Sheean: Mr. Smith, just describe the run, if you please, that you have now. I would like to have an idea of what the operations are?

Mr. Smith: It is known as an industrial job, I believe, a yard job. I go to work, and I show up at the—where the engines are assigned, at 5:20 P. M., and when I find what engine I am going to get (which is usually a different one every night), I take the eastbound train, and I go down to the 14th Street shops.

Mr. Sheean: That is, that caboose train that you speak of?

Mr. Smith: No, this is the passenger train that goes to East St. Louis. The caboose train runs over the Merchants' district. It is operated by the company.

Mr. Sheean: And that is a train simply to get the different crews to their different assignments, is it?

Mr. Smith: Yes.

Mr. Sheean: Only run for that purpose?

Mr. Smith: Yes.

Mr. Sheean: But you take the passenger train?

Mr. Smith: Yes.

Mr. Sheean: Now, is that a passenger train operated by the Terminal Railroad?

Mr. Smith: No, it is operated by the Pennsylvania System.

Mr. Sheean: But the Terminal Railroad takes that train in and out of the Union Depot? Is that the idea?

Mr. Smith: Yes, sir, they deliver this train to East St. Louis.

Mr. Sheean: Deliver it to East St. Louis?

Mr. Smith: Yes.

Mr. Sheean: And do you tow the train across there, or is the engine turned at East St. Louis?

Mr. Smith: Yes, sir.

Mr. Sheean: The power of the Terminal Association takes it across to East St. Louis?

Mr. Smith: Yes.

Mr. Sheean: And then the Pennsylvania engine is put on the same train there?

Mr. Smith: Yes.

Mr. Sheean: Now, is the Pennsylvania passenger train the only train handled by the Terminal Railroad Association?

Mr. Smith: No, sir.

Mr. Sheean: What other train companies have the trains handled by the Terminal Railroad Association?

Mr. Smith: The M. & O., the L. & N., the I. C., and the Wabash has a train delivered by the Terminal Railroad, out to what they call Bridge Junction.

Mr. Sheean: And all of these runs are practically the same as the one you are about to describe, the train that you take at 5:20?

Mr. Smith: Yes, sir, these other runs.

Mr. Sheean: Are practically the same?

Mr. Smith: Practically the same.

Mr. Sheean: Now, you take that train and go where, Mr. Smith?

Mr. Smith: I get off at the 14th Street shop of the Terminal Railroad Company. I get the engine out of the house, out of the shop there, usually known as the roundhouse, and we have to get the engine ready then for twelve hours' service.

Mr. Sheean: Well, now, by "getting ready," just tell us what you do?

Mr. Smith: Draw supplies.

Mr. Sheean: Do you actually carry on the supplies yourself?

Mr. Smith: I get on the engine, and the first thing we have is the boxes to unlock which contain the oil cans. We have to ascertain what oil we need; waste, and supplies, tools, and so forth. And then I draw the supplies and the oil and—

Mr. Sheean: Just tell us what you mean by drawing the supplies and oil.

Mr. Smith: I go to the oil house, make out a ticket for a twenty-four hours' supply of oil.

Mr. Sheean: And then somebody else brings the requisition that you make, over to that engine?

Mr. Smith: No, sir, I—

Mr. Sheean: You wait there and get the supplies yourself?

Mr. Smith: Yes, sir.

Mr. Sheean: Now, what about the tools on the engine? Do you physically carry the tools on and off?

Mr. Smith: Yes, sir, what is needed. No tools needed except a scoop and a broom, for instance, and say headlight chimneys for the headlights, and supplies for our lamps.

Mr. Sheean: Well, ordinarily these supplies are on the engine, are they not?

Mr. Smith: Ordinarily they are, yes, sir.

Mr. Sheean: And you simply check up to see if they are there, and if you find anything that is missing, then you make a requisition for them before you start out?

Mr. Smith: Yes, sir.

Mr. Sheean: But, in a great majority of cases the supplies and all the other equipment is there, and your duty is to see simply that it is there?

Mr. Smith: Yes, sir.

Mr. Sheean: Now, after that is done, Mr. Smith, just where do you go on your run?

Mr. Smith: Then, in getting that engine ready we have the two headlights, if they are not electric. They are equipping the engines now with electric headlights, but in this particular job I am on, in the great majority of cases, I get the oil headlight engines, and I have those to fix in proper burning conditions; also the cab lights. Then if we are ready to go at 6 o'clock, we move out of the house, about one hundred and fifty feet, and press an electric button, which signals the man in the tower that we are ready to go to our station.

Mr. Sheean: Now, that station may vary from night to night, or do you have the same station?

Mr. Smith: We have the same station six nights out of seven, and the seventh, they are liable to use us most any place around in the different yards in that locality.

Mr. Sheean: On the six nights where your work is pretty regular, just describe that work on some night there.

Mr. Smith: It is known as the Gratiot Street yard, and it takes us about five minutes (providing the signals are clear) to reach that yard, and when we get up to the yard we get our train crew there, and they take us down to what they call the Frisco house, and we make up what they call the second merchandise Frisco run, get the cars out of the freight house and make up the train; and then we—that takes about forty minutes under usual conditions.

Mr. Sheean: In making up a train that may involve the movement of cars, switching, moving the cars in and out, just the ordinary yard switching to make up this Frisco train, did you say?

Mr. Smith: Frisco train, yes.

Mr. Sheean: Now, when this train is made up, then what do you do with that?

Mr. Smith: When the train is ready to go, they give us a signal, we pull the train out of the yard, and we deliver it west, to what is known as the Frisco yard out there, 23rd Street yard.

Mr. Sheean: About what distance from the Gratiot yard?

Mr. Smith: Well, it is about a mile, I judge.

Mr. Sheean: About a mile. Now, at the Frisco yard, is there anything in the way of breaking up the train, or do you simply make that delivery to that yard, and the Frisco crew attend to anything further that is to be done?

Mr. Smith: We leave the train there.

Mr. Sheean: The entire train?

Mr. Smith: Yes.

Mr. Sheean: Except your caboose? Or do you have a caboose?

Mr. Smith: We have no caboose.

Mr. Sheean: In other words, you take from the Gratiot street yard, alongside of the Terminal Switching Association tracks, cars which you find there, which are destined to go by

way of the Frisco, and take those cars over to the Frisco yard, and leave them in the Frisco yard?

Mr. Smith: Yes, sir.

Mr. Sheean: Then what is your next work?

Mr. Smith: Then we go back to the—I should have stated that in delivering that train sometimes they run us up to Ewing avenue, and we leave the train there, and then we go back to the 23rd street yard, which we have entered, and we do switching work there for about five or six hours.

Mr. Sheean: Well, now, the 23rd street yard, is that where the delivery is ordinarily made to the Frisco?

Mr. Smith: That is where we enter the Frisco yard at 23rd street, and we may run over their track for about six or eight blocks.

Mr. Sheean: Well, do you have—is there a yard of the Terminal Association there also, or is that an exclusively Frisco yard, at 23rd street?

Mr. Smith: That is known as Frisco property, so I judge it is exclusively a Frisco yard.

Mr. Sheean: I understood you to say that you did some switching there, Mr. Smith, in that yard—your crew?

Mr. Smith: Yes, sir.

Mr. Sheean: So that you do switching for the Frisco in the making up of trains there also in the 23rd street yard?

Mr. Smith: Yes, sir. We go back there in the Frisco yard, and in those trains there is some cars to be set over in the Wabash yard, and some to be set over on the Terminal tracks. That is what we do.

Mr. Sheean: Make those up into one train, and take them over to these other two roads, for delivery?

Mr. Smith: Yes, sir.

Mr. Sheean: And make the delivery to the Wabash of the property destined to the Wabash, and the property destined somewhere else, to the other line?

Mr. Smith: Yes, sir.

Mr. Sheean: Now, after you have completed that work there, where do you go then? I just want to get a general idea, Mr. Smith, of what one of your regular night's work is?

Mr. Smith: We finish there about 12:30 A. M. Then we go down—

Mr. Sheean: Now, in all that time, from 6 o'clock until 12:30, you have covered a distance of about one mile, on what you speak of as the main line there? The rest of the time has been work in and about the yards?

Mr. Smith: Yes, sir.

Mr. Sheean: Now, after 12:30, then what do you do?

Mr. Smith: We go down to what is known as the 11th Street yard, and we may have some bad order cars to take down out of this Frisco yard to what is known as the rip track.

Mr. Sheean: About how far is that movement down to the 11th Street yard?

Mr. Smith: I should say that is about twelve to fifteen blocks; that is how I estimate it. It is known as 23rd Street down to the 11th Street yard.

Mr. Sheean: And bad order cars that are found anywhere in connection with your work are taken to this rip track at 11th Street, are they?

Mr. Smith: Yes, sir.

Mr. Sheean: Then what next is done?

Mr. Smith: We put those bad order cars over on the rip track, and then we go back to this 11th Street yard. This, you understand, is through this interlocking territory about all the time, and of course we are delayed—

Mr. Sheean: That is a distance of about twelve blocks?

Mr. Smith: Yes, and we are delayed more or less in getting these interlocking signals before we can make the movement; and then we go over to the 11th Street yard, and usually we go to supper for thirty minutes from the 11th Street yard. After that, the train crew gets orders from the yardmaster, and we go to work around those different yards and then make other deliveries to other yards, and do what they call the roustabout work; we do whatever is to be done.

Mr. Sheean: And that may vary from night to night, as to just where you are to go, or what cars you are to pick up?

Mr. Smith: It varies in some degree, yes, sir.

Mr. Sheean: Is that going entirely to yards of other companies, or does that include assembling cars from various industries?

Mr. Smith: That would be going to yards of other companies, I should say.

Mr. Sheean: Sometimes to one yard and sometimes to another?

Mr. Smith: Yes, sir.

Mr. Sheean: But when you speak of yards of other companies, they are yards immediately adjacent to the tracks of this Terminal Railroad Association?

Mr. Smith: Yes, sir; it is all around in that district.

Mr. Sheean: Now, what do you speak of this work as being; is that a transfer service, a switching service, or a switching and transfer service, that you are doing there?

Mr. Smith: Under the present conditions, or the present understanding there, it is known as yard work.

Mr. Sheean: Yard work?

Mr. Smith: Yes, sir.

Mr. Sheean: And all of the so-called main line movement that you make there, is in this distance of about one mile?

Mr. Smith: Yes, sir.

Mr. Sheean: In the one case, and ten or twelve blocks in another?

Mr. Smith: Yes, sir.

Mr. Sheean: And all of that is interlocked?

Mr. Smith: Yes, sir.

Mr. Sheean: That is yard work, as they understand it there?

Mr. Smith: I should say—

Mr. Sheean: Just in that connection, if you will pardon me for interrupting, the company itself has made no distinction between yard and transfer work, has it, but simply put you on an hourly basis, and if there be any distinction, the men, in the exercise of their seniority, have made the distinction between yard and transfer service; the company's schedule is on a purely hourly basis, is it not?

Mr. Smith: Yes, sir.

Mr. Sheean: They have never at any time classified one as transfer and another as yard, have they, in the schedule?

Mr. Smith: No, sir, I do not know that they have.

Mr. Sheean: So, when you speak of the distinction in the way it is classified now, you mean in the exercise of seniority between the men, that this is treated as a yard job that you have now?

Mr. Smith: Yes, sir.

Mr. Sheean: That is merely for the convenience of the men in determining their seniority rights, that that distinction is made, whereby you call that the yard service?

Mr. Smith: Yes, sir.

The Chairman: Mr. Sheean, we will suspend now.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

AFTER RECESS.

C. N. SMITH was recalled for further examination and having been previously sworn, testified as follows:

Mr. Sheean: Mr. Smith, on these passenger trains that are transferred there, are there any crews assigned exclusively to handling those passenger trains?

Mr. Smith: Yes, sir; they are preferred jobs. The oldest men usually take that class of work.

Mr. Sheean: And those men do nothing other than handle passenger trains?

Mr. Smith: No, sir; they are in what we call freight transfer service, after the passenger train rush is over. The passenger train rush lasts principally around 6 o'clock A. M. and P. M., for about three hours. After that the engines are used in freight service, through the tunnel to East St. Louis.

Mr. Sheean: So that there isn't any crew that devotes all of its time to simply handling the passenger trains?

Mr. Smith: No, sir; of course, when they are through with that passenger rush they have to do other work. They have some jobs there, what they call half-and-half jobs, and I believe it is only one or two jobs out of the 116 jobs that are there on the system and those men, there are one or two crews, I believe, who hold these half-and-half jobs, and when they are through with the passenger rush, they usually go home, for instance, in the morning, and then they come back in the evening and work out three or four hours more, and then they are relieved again.

Mr. Sheean: Then, the practice there on that road is that they have 116 different jobs that you speak of?

Mr. Smith: Well, they have that many engines. Of course, a few of them are laid up for repairs and for shop work, and

right now there are some of them out of the service. I don't know how many jobs they have over the system.

Mr. Sheean: But the road itself makes no distinction in the pay per hour on any of those different jobs?

Mr. Smith: No, sir.

Mr. Sheean: And what is a preferred run depends purely upon the judgment of the men themselves?

Mr. Smith: Yes, sir.

Mr. Sheean: You said that while you yourself prefer yard work, isn't it a fact that the majority of the older men there are on these so called transfer runs?

Mr. Smith: No, sir. My idea or conclusion is that the oldest men take the yard jobs.

Mr. Sheean: Have you made any check of their seniority list as to just what they are doing to determine whether that is the fact or not?

Mr. Smith: Well, I am so certain of that—I could check it up and tell you right here.

Mr. Sheean: Do you happen to remember who the oldest man is on your seniority list?

Mr. Smith: Yes, I remember two or three of the oldest men—engineers or firemen?

Mr. Sheean: Firemen, I am speaking of.

Mr. Smith: Well, now, the oldest fireman that I can recollect—I can give you the names here—on yard work.

Mr. Sheean: The three oldest?

Mr. Smith: Yes, sir. In fact, the oldest man there, who has been there since about 1890, he is in yard work.

Mr. Sheean: Who has this preferred run that you spoke of a moment ago, handling the passengers—the half and half?

Mr. Smith: A man by the name of Kinney is the last man I knew was on that run.

Mr. Sheean: And do you know whether or not he is an old man or a young man on the seniority list?

Mr. Smith: He is one of the oldest men. Some of the oldest men are hostling there.

Mr. Sheean: That also they have taken by their selection, have they—their own selection?

Mr. Smith: I can read you off this senior list here: John T. Graham, September 18, 1886. He is a day hostler.

Mr. Sheean: He has the right to pick, on an hourly basis, any work on that whole system?

Mr. Smith: Yes.

Mr. Sheean: And the first man on the list has picked the job of hostling?

Mr. Smith: Yes.

Mr. Sheean: The second man?

Mr. Smith: N. S. Swaney. He has what they call the 10th Street job. It is an industrial job that works around the Cupples Building.

Mr. Sheean: That is, that is largely industrial switching?

Mr. Smith: Yes.

Mr. Sheean: Does he, in the work he does there, after assembling the cars for a particular industry, or number of industries, get those assembled in the yards somewhere, made up into a transfer train?

Mr. Smith: Yes; he does that, and he does the work that is the class of spotting houses. That is, they spot the cars before the freight platform for unloading.

Mr. Sheean: That is, he does, then, partially switching and partially transfer?

Mr. Smith: I do not think he works in any yard except the terminal yard.

Mr. Sheean: What is it?

Mr. Smith: He only works on the terminal tracks, on Terminal territory. He does not go into any of these other yards that I know of.

Mr. Sheean: About how much of the main track that you speak of here does he work over? Just in a general way is all I want, Mr. Smith.

Mr. Smith: Well, it is right around in one locality. I should say he works over—not out of sight of any one point.

Mr. Sheean: Would it cover about the same distance that you spoke of in describing your run this morning—ten or twelve blocks?

Mr. Smith: Why, I would estimate it at that.

Mr. Sheean: Just one or two more there. The third one on the list, what does he do?

Mr. Smith: He died the other day, J. D. Martin. W. D. Lutz, he is in about the same yard as the one I just spoke of.

Mr. Sheean: And one night, or both day men?

Mr. Smith: Both day men.

Mr. Sheean: Now, just run on down the list hurriedly.

Mr. Smith: This fifth man, he—I don't know exactly where he works, except he did have what they call the Granite City job. He is probably on a construction train now, a work train.

Mr. Sheean: The Granite City job, was that going across the bridge, a transfer job?

Mr. Smith: Yes, that is a transfer job; in this way, they take a passenger train up to Granite City, and the rest of the day they switch up there in Granite City around industrial plant. Fred Gobel—

Mr. Sheean: On that particular run he would be running from St. Louis over to Granite City, and then putting in the rest of the day in industrial switching?

Mr. Smith: Yes, and then bringing the train back in the evening.

Mr. Sheean: How do you classify him under your operations there, or under this proposal? Is that man engaged in transfer service, or switching service?

Mr. Smith: I would say the transfer service at the start, and finish, and in between would be the yard.

Mr. Sheean: Well, if there is a different rate for transfer and for switching, just how would that man be paid there? One day on each service? How much time in each service?

Mr. Smith: I do not know. That would have to be worked out after much debate.

Mr. Sheean: And the fact about it there, down on your road is, that the transfer—what is transfer and what is switching, has been intermingled all the time, hasn't it?

Mr. Smith: Yes, sir.

Mr. Sheean: There is not, on this Terminal Railroad Association of St. Louis—there never has been any distinction drawn between transfer service and switching service, except as the men are permitted to choose between the different runs?

Mr. Smith: Yes, sir. That is—

Mr. Sheean: Some men prefer work in which there is more yard than transfer, and others pick jobs in which there is more transfer than switching?

Mr. Smith: I can illustrate that further, by saying we have what we call passenger yard work there. It is simply getting passenger trains as they come in, taking them from out of the shed, the station shed, and putting them away in the different coach yards. That is strictly yard work, and the oldest men are on that work, both engineers and firemen. They take what they call passenger yard work. That is preferred above this transfer work that I speak of.

Mr. Sheean: Yes, well, that is what is done in nearly all the cities in switching the empty coaches from the coach yard to the passenger station and taking out the empty coaches from the passenger station to the coach yard?

Mr. Smith: Yes.

Mr. Sheean: And, there, this Railroad Association, this Switching Association, does that work for the various tenant companies, the making up of the various passenger trains and taking the empty coaches from the depot down to the coach yards?

Mr. Smith: Yes, sir.

Mr. Sheean: That is switching, is it not?

Mr. Smith: Yes, that, as I say, is strictly yard work or switching.

Mr. Sheean: Although part of that, I take it, is over the main line down to the coach yard, is it not?

Mr. Smith: Yes, sir, we have to go on the main line to get in and out of the station.

Mr. Sheean: With this change in the size of engines that you speak of down there on the Terminal Association, I take it there has not been any change in your tonnage rating for an engine, or have you ever had a tonnage rating, or do you just haul what you happen to have from one place to another?

Mr. Smith: We haul all that they can furnish at the time, and that the engine can pull.

Mr. Sheean: And the usual situation there is that you are endeavoring to get from the different industries enough to make up a trainload, are you not?

Mr. Smith: Well—

Mr. Sheean: That is, you do not find in the switching operations there, ordinarily, any overloading in the switching or transferring from one place to another?

Mr. Smith: Oh, yes, we do. Yes, sir. Trains stall every day, that are overloaded.

Mr. Sheean: At any particular point?

Mr. Smith: The greatest is through the tunnel to East St. Louis; they have the greatest number of stalls through the tunnel and also going up to what we call the high lines, up to the elevated tracks.

Mr. Sheean: That is on taking trains over there, or in making the transfers from one yard to another?

Mr. Smith: Making the transfers.

Mr. Sheean: Making the transfers?

Mr. Smith: Yes, sir.

Mr. Sheean: I think that is all.

RE-DIRECT EXAMINATION.

Mr. Phillips: Mr. Smith, before adjournment, I understood you to say, in answer to a question by counsel for the railroads, that you found usually all of the supplies on the engines when you reported for work. Is it not a fact that you have to place on the oil supplies yourself, every day, as a part of your preparatory work?

Mr. Smith: Yes, sir; about four-fifths of the time we do.

Mr. Phillips: But, the supplies which you usually find upon the engines, and which are most commonly found on all engines on all railroads, perhaps, are the shaker bar and the clinker hook and those things that are not removable or replaced every day?

Mr. Smith: We have not any shaker bar or clinker hook on the engine.

Mr. Phillips: Well, you have frogs and jacks, I suppose, and a few tools?

Mr. Smith: Yes.

Mr. Phillips: And those things you usually find on the engines?

Mr. Smith: Yes, sir.

Mr. Phillips: But the oil is a part of your preparatory work, to put that on, ordinarily?

Mr. Smith: Yes, sir; preparatory work.

Mr. Phillips: I perhaps misunderstood you, Mr. Smith, but you were asked this morning if these passenger trains, or these

trains on which the men rode to and from their work, were not the usual passenger trains that these engineers and firemen handled into and out of the Union Station or across the bridge; is that true?

Mr. Smith: They are regular time card passenger trains, but they ride to and from their work, with the exception of the early cab trains, there are two trains, well, they leave twice daily; and those two trains are what are considered employes' trains, that just consist of an engine and one coach, and they leave before the passenger trains are moving, and they go to points that the passenger trains do not go to, and the enginemen and trainmen and the other employes take those cab trains to get to the points they are assigned to.

Mr. Phillips: In addition to these trains run by the company to deliver the men to different points where they work, some of the men, like in your own case, may take a regular passenger train going out of there, and take them across the bridge or wherever you are assigned?

Mr. Smith: Yes, sir.

Mr. Phillips: You have permission to do that, have you?

Mr. Smith: Yes, sir.

Mr. Phillips: But that is in addition to these regular cab trains run by the company for delivering men?

Mr. Smith: Yes, sir.

Mr. Phillips: And on these passenger trains on which you sometimes ride, as in your own case, and in other cases perhaps, those are fully equipped passenger trains of different railroads coming into and going out of St. Louis?

Mr. Smith: Yes, sir.

Mr. Phillips: That is, you take the regular trains leaving the Union Station, going over all the roads, the Mobile & Ohio, Louisville & Nashville, Southern Railway, the Vandalia, Illinois Central, the Wabash, or some of the Wabash trains, at least, and those trains cross the bridge in exactly the same way that they will go out through the country?

Mr. Smith: Yes, sir.

Mr. Phillips: Or, you take the trains as they come in off those roads, or whatever roads you handle, and the engineers and firemen deliver them in the passenger station?

Mr. Smith: Yes, sir.

Mr. Phillips: How many passenger trains daily are handled in and out of the Union Station at St. Louis?

Mr. Smith: I think there are about 330 trains shown on the time card in and out of the Union Station.

Mr. Phillips: And whether those trains are handled by Terminal Railroad Association engineers and firemen, or by the road engineers and firemen of the various roads, they are intermingled and they have to know the conditions and rules alike, the engineers and firemen?

Mr. Smith: Yes, sir.

Mr. Phillips: These engineers and firemen who work for the Terminal Railroad Association are paid just the same as switch engineers and firemen?

Mr. Smith: Yes, sir.

Mr. Phillips: Despite the fact that they are using the main line and handling first class passenger trains, the same as other engineers and firemen?

Mr. Smith: Yes, sir.

Mr. Phillips: You spoke about this tunnel, where you are sometimes stalled. Do passenger trains go through that tunnel, too?

Mr. Smith: Yes, sir.

Mr. Phillips: Do they stall sometimes, or is it a heavy pull through there?

Mr. Smith: No, sir, they go through without any trouble, unless something should happen.

Mr. Phillips: But the freight trains stall?

Mr. Smith: Yes, sir, they stall through overloading.

Mr. Phillips: How long is that tunnel?

Mr. Smith: It is 4,800 feet, about 7/8ths of a mile.

Mr. Phillips: Is it very warm in there?

Mr. Smith: Exceedingly warm, yes, sir. It gets so warm that when these freight trains are going slow, that the engine crews have to shut off and wait in there until another engine from the other end comes in and pushes them on through.

Mr. Phillips: When they are stalled, or slowed up so that they cannot proceed except at a very slow speed, then it becomes so hot that they have to shut off and wait for the helper to help them out?

Mr. Smith: Yes, sir.

Mr. Phillips: Then, you do not have to go to the Rocky Mountains, or out in the Cascades or Coast Range, to find long, hot tunnels.

Mr. Smith: No, sir.

Mr. Phillips: I suppose 130 or 140 degrees would be the same in St. Louis as out in that tunnel on the Great Northern, west of Laggan, would it not?

Mr. Smith: Yes, sir, about as bad.

Mr. Phillips: I understand you to say that you took cars from one yard, or part of the Terminal Railroad Association yards, and moved them over to the Frisco yards, or yards of other railroad companies, is that correct?

Mr. Smith: Yes, sir.

Mr. Phillips: I understood you to say, in answer to a question, that the yards of these other railroad companies, were adjacent to the yards of the Terminal Railroad Association, is that true?

Mr. Smith: Yes, sir.

Mr. Phillips: Can you conceive of any other way those cars could be delivered to another track, unless they were adjacent tracks?

Mr. Smith: No, sir, I do not.

Mr. Phillips: Do you consider the work you are doing, taking these cars and moving them a distance of a mile or more on the main track, from the yards of one company to another company, or between different yards of the same company, transfer work?

Mr. Smith: Yes, sir; strictly transfer work.

Mr. Phillips: Your railroad company, I understand, does not consider that they have any transfer service?

Mr. Smith: No, I never heard them admit that they had.

Mr. Phillips: Have you ever heard anybody say that they did not have?

Mr. Smith: I heard the general manager personally say that they had no transfer jobs there.

Mr. Phillips: No transfer jobs on the Terminal Railroad?

Mr. Smith: Yes, sir.

Mr. Phillips: Now, they operate some trains there of 100 cars, more or less, do they not, with a caboose attached, and

the air coupled all the way through, and an engine weighing 200,000 pounds on drivers pulling that train?

Mr. Smith: Yes, sir. Out of what is known as the Madison yard to the Illinois Transfer Belt.

Mr. Phillips: Over to Dupo?

Mr. Smith: To Dupo.

Mr. Phillips: Or from Dupo?

Mr. Smith: Yes, sir.

Mr. Phillips: Notwithstanding the fact that that railroad operates trains of that character, the general manager holds that they have no transfer service?

Mr. Smith: Yes, sir.

Mr. Phillips: Would it be possible that because some other railroads have paid to their engineers and firemen, road rates of pay for transfer service, that your company might object to the use of that term for fear that it might be the means of increasing the pay of engineers and firemen handling those long freight trains?

Mr. Smith: That is the general feeling of the men.

Mr. Phillips: That is what the men feel?

Mr. Smith: Yes, sir.

Mr. Phillips: When the larger engines were introduced, that is, the size of engines increased, the new engines were larger by several thousand pounds on the drivers—thirty or forty or fifty thousand pounds or more—did they then haul more cars than they did with the smaller engines?

Mr. Smith: Yes, sir.

Mr. Phillips: So that the tonnage has, in fact, increased?

Mr. Smith: Yes, sir.

Mr. Phillips: Although no tonnage rating is shown, there are more cars being moved by one engine than before?

Mr. Smith: Yes, sir.

Mr. Phillips: I think that is all.

RE-CROSS EXAMINATION.

Mr. Sheean: What is the distance of this run, Mr. Smith, that you speak of, sometimes running a train of one hundred cars, with a caboose on it?

Mr. Smith: That would be from Dupo, Illinois, to the Madison yards, about eleven miles.

Mr. Sheean: About eleven miles?

Mr. Smith: Yes, sir.

Mr. Sheean: And there is a yard at Dupo?

Mr. Smith: That is the Iron Mountain yards at Dupo.

Mr. Sheean: And at Madison are there yards?

Mr. Smith: That is the general yard of the Merchants' District of the Terminal Railroad Association.

Mr. Sheean: So that the longest run is this, something less than eleven miles?

Mr. Smith: I would not say less. If anything, I would say above that.

Mr. Sheean: Well, it is about eleven miles—between ten and eleven, probably—something of that sort?

Mr. Smith: Yes, sir.

Mr. Sheean: That is a run made every day, twice a day?

Mr. Smith: They have what they call the long and short belt, the regular runs, and each of those belt runs are made twice a day and probably four times a day. I think that they were making the long belt run—each crew was making the long belt run twice on a shift—twice within a twelve-hour shift.

Mr. Sheean: A twelve-hour shift and on the long belt run, if they made the two round trips of forty miles all told, that was the extreme length of service, was it?

Mr. Smith: It would be over forty miles—it would be forty-four or forty-eight miles—forty-five miles, say.

Mr. Sheean: In twelve hours' time?

Mr. Smith: In twelve hours' time, yes, sir.

Mr. Sheean: I take it, during the twelve hours, they must have been doing something more than running the forty-eight miles?

Mr. Smith: Yes, sir.

Mr. Sheean: And that included switching at both these yards?

Mr. Smith: Yes, sir.

Mr. Sheean: First making up the train in one yard and then taking it over to another yard.

Mr. Smith: At Madison it is all one general yard, and it would be just simply by getting the cars off different tracks and making up their train, and also some of that time would be con-

sumed in getting the supplies on the engine and getting the engine into and out of the roundhouse.

Mr. Sheean: What is the shorter belt run that you spoke of?

Mr. Smith: It goes down to what they call Valley Junction.

Mr. Sheean: What is that distance?

Mr. Smith: That is about five miles from Madison.

Mr. Sheean: Five miles?

Mr. Smith: Yes, sir.

Mr. Sheean: And the work there is much the same, that is, making up a train in one yard and taking it down and delivering it to another yard?

Mr. Smith: Yes, sir; and the short belt has more switching, en route, to do than the long belt.

Mr. Sheean: That is on the five-mile run, in addition to the transfer from one to the other yard, there is a good deal of intermediate switching?

Mr. Smith: Yes, sir.

Mr. Sheean: Are both of those trains run with cabooses?

Mr. Smith: Yes, sir. I know the long belt is, and I am pretty sure the short belt is, also.

Mr. Sheean: Now, in putting out the supplies of this oil that you speak of, I am not sure that I know just what you mean, how much oil a fireman physically puts in at the beginning of the run.

Mr. Smith: Well, it is dependent on how his stock of supply is. If all the cans are empty, he will put on about four pints of valve oil and about four pints of engine oil, and if he had an oil burning headlight it would be sixteen pints of headlight oil, and six pints of signal oil for his lamps.

Mr. Sheean: That is, assuming that he finds it all empty?

Mr. Smith: That is, assuming—

Mr. Sheean: And his obligation as to all of this is to first inspect to see that he has enough to complete a twelve-hour shift?

Mr. Smith: Yes.

Mr. Sheean: And, if he has not, to replenish it. Now, when all these quantities are supplied in the quantities you have spoken of, how long will that supply an engine?

Mr. Smith: A supply like that is supposed to last 48 hours.

Mr. Sheean: 48 hours?

Mr. Smith: By the company's rules.

Mr. Sheean: So that to do the things that you have spoken of now would have to be done once every 48 hours if the engine was running constantly, or one out of every four shifts would catch the work you have described now with reference to the oil?

Mr. Smith: No, it is a daily requirement, a necessity that the men go and oil, and that quantity of oil I speak of is a double supply than what is allowed. If we find on an engine a twelve-hour supply, we would draw another 24-hour supply, which would be about half the quantity I mentioned.

Mr. Sheean: And in that case, if you found a 12-hour supply and drew a 24-hour supply, the man who took the engine from you, upon inspecting it, would find that there was no oil to be put on it for his shift?

Mr. Smith: No oil, no, sir. But it often happens that they may have enough of one oil and be out of another grade of oil.

Mr. Sheean: Now, these passenger trains that you have described as running in and out, 313 of them a day.

Mr. Smith: 330, I think I said.

Mr. Sheean: 330 per day. Do you know what the fireman's rate per hour—passenger rate, is on those trains?

Mr. Smith: A great many of those trains are handled by the regular road crews, and I am not familiar with the passenger rates that are paid on those roads now to state.

Mr. Sheean: Just what is the reason, in your judgment, why a fireman working for your road should receive through freight rates on those, while the fireman for the road on passenger trains should be paid on passenger fireman's rates?

Mr. Smith: Well, as I stated, that passenger transfer work only lasts about three hours. Then the balance of the twelve hours the train crews are used in freight service.

Mr. Sheean: Well, and of the nine or twelve hours on freight service perhaps a half or perhaps three-quarters is in switching service, is it not?

Mr. Smith: I would say about a half of that twelve hours was used in passenger and the other half was used in transfer and switch service.

Mr. Sheean: Well, of the part that is in freight service, part is transfer and part switching, on all of the runs?

Mr. Smith: Yes, sir.

Mr. Sheean: You do not think it is feasible, do you, in the operation of that railroad down there, to keep track of one rate while you are handling a passenger train and another while you are doing transfer work, and another while you are doing switching, and charge three different rates to the man during his twelve hour shift?

Mr. Smith: It would be more feasible for the railroads to do it. They would have the figures and the time, and so forth; but it would be hard for the man.

Mr. Sheean: To keep track of just how much time was switching?

Mr. Smith: An engineer would have to be looking at his watch and figuring most of the day.

Mr. Sheean: And the way that this railroad is run, all the time that you have been there, is that part of the time the engineer would be switching, part of the time taking from one yard to another, possibly, on the same day, handling coaches and passenger trains part of the time, and freight trains part of the time?

Mr. Smith: Yes, sir.

Mr. Sheean: That has always been the operation there?

Mr. Smith: As long as I have known; for five years.

Mr. Sheean: That is all.

The Chairman: Anything further, Mr. Phillips?

Mr. Phillips: No; that is all.

The Chairman: Call your next witness.

G. W. MINTON was called as a witness and, having been first duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: State your name, please, and place of residence?

Mr. Minton: G. W. Minton, Fort Worth, Texas.

Mr. Phillips: What is your occupation?

Mr. Minton: Locomotive fireman.

Mr. Phillips: By what railroad are you employed?

Mr. Minton: Texas & Pacific.

Mr. Phillips: In what branch of service?

Mr. Minton: Yard service.

Mr. Phillips: At Fort Worth, Texas?

Mr. Minton: At Fort Worth, Texas; yes, sir.

Mr. Phillips: Mr. Minton, have you heard the testimony of the firemen who have preceded you as witnesses today?

Mr. Minton: Yes, sir.

Mr. Phillips: Are the duties of a yard fireman at Fort Worth similar to the duties described by the preceding witnesses?

Mr. Minton: Well, it is practically the same; yes.

Mr. Phillips: Do you have preparatory work to do, Mr. Minton?

Mr. Minton: Well, we are supposed to; that is the company's rule, that we have preparatory work to do, but in each instance we cannot follow that up, for this reason: Ten hours or less constitute a day's work. But we have a number of jobs that work regularly eleven hours each day, you understand, and so the engine is ready when the crew relieves the other. Then the engine is ready for the other crew to go right on and proceed to work. In fact, the engine is kept in shape at all times.

Mr. Phillips: And the supplies, then, are placed on and at a convenient time?

Mr. Minton: Yes.

Mr. Phillips: And the engine is always in a prepared condition; that is, the fire is never permitted to die down, and when the lubricator is empty it is refilled by the engineer or fireman out in the yard?

Mr. Minton: Yes, sir.

Mr. Phillips: How many hours do you work ordinarily?

Mr. Minton: Well, I will average ten hours and three-quarters, I suppose, would be a very fair average; almost every day I work an hour's overtime.

Mr. Phillips: For which you are paid?

Mr. Minton: Yes, sir.

Mr. Phillips: That is, you are on a ten-hour basis, and you draw eleven hours' pay for each day?

Mr. Minton: Yes, sir.

Mr. Phillips: Do you work days or nights?

Mr. Minton: I work days.

Mr. Phillips: Do you also have night service in that yard?

Mr. Minton: Yes, sir.

Mr. Phillips: About how many men are employed in that yard by the Texas & Pacific Railway?

Mr. Minton: You mean as firemen?

Mr. Phillips: As firemen.

Mr. Minton: I believe we have thirty-nine on the yard firemen's seniority list; there are that many that retain their seniority at that terminal, but there are a few, I judge some five or six, that are cut off the board now and are temporarily out of service.

Mr. Phillips: Are about an equal number of these men worked days and nights?

Mr. Minton: Yes, sir.

Mr. Phillips: That is, about as many work in the day time as in the night time?

Mr. Minton: Yes, sir.

Mr. Phillips: Do the older men prefer the day jobs or the night jobs?

Mr. Minton: The older men prefer the day jobs.

Mr. Phillips: Are the hours of service about the same length?

Mr. Minton: Practically so, not much difference, or none.

Mr. Phillips: So that the earnings of the firemen are about the same on a day job as on a night job?

Mr. Minton: Yes, sir, with the exception of one.

Mr. Phillips: What one is that?

Mr. Minton: We have one job that is called the belt job, that they make a good deal of overtime on, that job; they go to work at 5:30 in the evening and get through at 6:30, 7:30, or anywhere along there, in the morning, that they can.

Mr. Phillips: You say it is called a belt job; do you mean a transfer job?

Mr. Minton: That is the service they perform, I believe. It is the transfer from the Ft. Worth, Texas & Pacific, and the I. & G. N., to the Ft. Worth Belt Railway, at Swift's and Armour's plants, and the Cotton Belt.

Mr. Phillips: And that job works more hours than the other jobs.

Mr. Minton: It makes more overtime.

Mr. Phillips: Is the rate of pay of that job the same as for the transfer or yard job?

Mr. Minton: Yes, sir, just the same.

Mr. Phillips: How does the work compare on the two jobs?

Mr. Minton: Well, it is a good deal heavier; that is, it requires more coal to handle that job than it does on a regular job, switching in the yard.

Mr. Phillips: Is the responsibility greater, do you think?

Mr. Minton: Well, yes, I think so, because you have to go over the joint track, the main line, and I believe it is recorded as being the busiest piece of track in the state.

Mr. Phillips: In the state of Texas?

Mr. Minton: Yes, sir, over that little piece of joint track there.

Mr. Phillips: Is a fireman required to carry a standard watch?

Mr. Minton: Yes, sir.

Mr. Phillips: And have it inspected at regular intervals?

Mr. Minton: Twice each month.

Mr. Phillips: And, so he must have the correct time and must understand the movement of trains in case of necessity?

Mr. Minton: Yes, sir, and familiarize himself with the time card.

Mr. Phillips: You understand the firemen receive the same rate of pay on this Belt job as is paid for the yard service?

Mr. Minton: Yes, sir.

Mr. Phillips: What is the rate of pay?

Mr. Minton: Twenty-five cents an hour.

Mr. Phillips: The same days and nights?

Mr. Minton: Yes, sir.

Mr. Phillips: Do you know what the rate of pay is for switchmen working in the same yard?

Mr. Minton: Yes, sir.

Mr. Phillips: What is the rate by the hour or by the day of ten hours?

Mr. Minton: The rate of pay for the helper is 35 cents for day work and 37 cents for night work. The foreman, or conductor; he is called a foreman there, is 40 cents, I believe, for day work—38 and 40 cents.

Mr. Phillips: 38 cents for days and 40 cents for nights?

Mr. Minton: 38 cents for days and 40 cents for nights.

Mr. Phillips: Then, the day helpers get 10 cents an hour more than the firemen on the switch engine?

Mr. Minton: Yes, sir.

Mr. Phillips: And the fireman gets 12 cents an hour more?

Mr. Minton: Yes, sir, more than the day fireman.

Mr. Phillips: More than the day fireman or the night fireman?

Mr. Minton: Yes, sir.

Mr. Phillips: Your day firemen and night firemen get just the same, do they not?

Mr. Minton: Yes, sir; but the night helper gets two cents an hour more than we do.

Mr. Phillips: That would be 12 cents an hour more than the day or night fireman?

Mr. Minton: Yes, sir.

Mr. Phillips: You do not think that is too much money for a man switching box cars, do you?

Mr. Minton: No, I believe they earn it.

Mr. Phillips: Do you think the fireman is getting enough pay at 25 cents an hour?

Mr. Minton: No, sir, I do not.

Mr. Phillips: Have you any reason to think, or do you know why the wages of switch engine firemen are so comparatively low?

Mr. Minton: Well, we have never been able to get the rate increased there. And, you know, a good many years ago, while I have not been in service long enough to know from my own personal knowledge, but a good many years ago those men were classed as apprentices; it seemed that they were just performing this service temporarily, and were looking for something better in the very near future; but those conditions have changed now, and a man that is working there now is working for a living.

Mr. Phillips: Is it not a fact that in this day that you speak of, whether it was five years ago, ten years ago or twenty years ago, these apprentice firemen were boys, fifteen, sixteen or seventeen years old, often youths of very young age?

Mr. Minton: A good many years ago those conditions prevailed, yes, sir.

Mr. Phillips: The engines were smaller and the work lighter then than now?

Mr. Minton: Yes, sir, a great deal smaller.

Mr. Phillips: Is it not a fact that the laws of some states, at least, and the rules of many railroad companies require and provide that no person under the age of twenty-one years shall be employed in train and engine service?

Mr. Minton: That is the rule on the Texas & Pacific Railway, and I believe a state law in Texas.

Mr. Phillips: So that there are no apprentices serving as switch engine firemen now?

Mr. Minton: No, sir.

Mr. Phillips: Have you any bright prospects in the future as to promotion or some better job?

Mr. Minton: There is no promotion from the position of yard fireman on the Texas & Pacific.

Mr. Phillips: And no road service open to you by seniority choice?

Mr. Minton: No.

Mr. Phillips: So that you are simply a laborer or working man, firing a switch engine for a livelihood?

Mr. Minton: Yes, sir, that is it.

Mr. Phillips: Do you find our wages as switch engine fireman, permit you to support your family in luxury?

Mr. Minton: No, sir; not in luxury.

Mr. Phillips: Does it keep you working pretty steadily to support your family at the rate of 25 cents an hour, and working ten or eleven hours a day?

Mr. Minton: Yes, sir; I try to work all the overtime I can in order to make a living.

Mr. Phillips: If a fireman worked longer hours, like on the belt job you spoke of, or any job, even though the hours were longer and harder, would you take that job in preference, in order to make additional money?

Mr. Minton: I did do it from February 23rd until June 13th, I believe; one of those belt jobs was open, and I went and I took the job and exercised my seniority, in order to make more money. The job was paying about thirteen or fourteen hours a night, at that time.

Mr. Phillips: And you were willing to take that night work

with its disagreeable features, and work the additional hours in order to make the fifty or seventy-five cents additional each day, in wages, were you?

Mr. Minton: Yes, sir; I was almost compelled to; I was not making money enough; I was getting behind.

Mr. Phillips: Do you find that there has been any increase in the cost of living in Texas?

Mr. Minton: Yes, sir, there has been a considerable increase in Texas.

Mr. Phillips: Recently?

Mr. Minton: In the grocery line.

Mr. Phillips: Is that recent, or has it existed for several years back?

Mr. Minton: Well, it has been going on for the last two or three years, two years I will say, anyway. No, my expenses at the present time are not any more than they were five or six years ago, because I was living up to all I made then, and I had to cut down a little bit.

Mr. Phillips: That is, you have to deprive yourself and forego some of the things you had in the first place?

Mr. Minton: Yes, sir.

Mr. Phillips: Because your earnings would not permit you to purchase them, is that it?

Mr. Minton: Yes, sir.

Mr. Phillips: There has been quite a considerable increase in the last two or three or four years, in your cost of living?

Mr. Minton: Yes, sir, there has been a considerable increase.

Mr. Phillips: That is all.

CROSS EXAMINATION.

Mr. Sheean: This Ft. Worth Belt that you speak of, that is one of the parties to this movement. I wish you would tell us just what that line is, how many miles it has.

Mr. Minton: I believe the time card gives that as 3 7/16, or 11/16, or something like that; I would not be just positive, but it is almost four miles.

Mr. Sheean: And is it a belt line which goes around any city or what is it?

Mr. Minton: No, sir, it is a piece of track that goes from

Ft. Worth to Whitesboro and Barnum and Texarkana; it is what is called the Trans-Continental Division of the Texas & Pacific Railway, and this is about four miles, or 37/16, or whatever it is, I disremember just what the time card gives; but from Ft. Worth there is a place called Belt Junction, a little day and night telegraph office and a yard there—

Mr. Sheean: Well, that is the busy little piece of track you spoke of here, is it?

Mr. Minton: Yes, sir; between—

Mr. Sheean: What I meant was, Mr. Minton, was this separate railway here, known as the Ft. Worth Belt Railway—I think you said it supplied some of the packing houses there.

Mr. Minton: Yes, sir, the Texas & Pacific deliver all the stuff that comes in on their incoming trains off the I. & G. N. and the Texas & Pacific, from their three directions; they get hold of that, that is billed for Belt Junction, or the packing houses, or the Cotton Belt; their yard is over there, and they get hold of that stuff and deliver it out to that Belt Junction.

Mr. Sheean: Then, from the Belt Junction, what is this Ft. Worth Belt Railway?

Mr. Minton: That is a terminal railway, I believe, that has not any mileage except right around the packing houses and yards, and the connection with the Cotton Belt and Rock Island, and some of those.

Mr. Sheean: It is purely industrial there, is it?

Mr. Minton: Yes, sir.

Mr. Sheean: It is not, in fact, a belt line that runs around the city?

Mr. Minton: No, sir, it is not.

Mr. Sheean: It is spoken of as the Ft. Worth Belt Railway.

Mr. Minton: The Ft. Worth Belt Railway, yes, sir.

Mr. Sheean: That is the name of it, and the suggestion here is that all belt railways shall pay through freight rates. Is there anything done on this belt railway except purely switching operations?

Mr. Minton: Their distance is something like two or three miles out to this junction of the Trans-Continental Division of the Texas & Pacific, down to the packing houses.

Mr. Sheean: That so-called Belt Railway connects with

the Trans-Continental Line two or three miles away from the packing houses?

Mr. Minton: Yes, sir.

Mr. Sheean: And at that junction this so-called Belt Line takes the cars and does the industrial switching at the packing houses?

Mr. Minton: Yes, sir.

Mr. Sheean: And their entire through freight haul, if they haul from one end to the other of their entire system, would be a distance of two or three miles?

Mr. Minton: I believe that is about as far a distance as they have. I never was over the road myself down there, but it is something like that.

Mr. Sheean: Do you see any real difference, because that is called a belt railway, as to the rate that ought to be paid on that line, through freight, because it is named a belt railway, from what you would pay on a switch line that was two or three miles in length?

Mr. Minton: I never was employed by the Belt there, and never was over their track, and do not know anything about the physical conditions of it. I could not say under what conditions they work, even.

Mr. Sheean: But you do know, Mr. Minton, that the whole length of the so-called road is about two or three miles?

Mr. Minton: Two or three miles, something like that. That is, from the point where they leave their packing house to deliver their stuff to the Texas & Pacific, or the International & Great Northern or the Missouri, Kansas & Texas. They also deliver to the Missouri, Kansas & Texas.

Mr. Sheean: When you were on this transfer work, I think you said that was one that started at 5:30 in the evening, and you might get off at 6 or 6:30 or 7 or 7:30?

Mr. Minton: Yes, sir.

Mr. Sheean: The time you would be engaged in that work would be dependent entirely upon what work there was to do there, I suppose?

Mr. Minton: Yes, sir; it would depend upon the stuff that came in to be delivered to the Belt.

Mr. Sheean: And that varied from day to day?

Mr. Minton: Well, we had a train in from the Texas &

Pacific, from the west, something like 5 o'clock, between 4 and 5 o'clock, and if it got right in on time, why, we would make an hour's overtime delivering that stock. It was a stock express. And we were sure of an hour's overtime delivering that stock every morning. And sometimes it would be late, and it would come in just a little bit before the day job would come to work, and, why, we would take it and go on out with it.

Mr. Sheean: And of course the length of time that you would be called upon putting in that work would be dependent upon whether the train got in on time or any difficulties you might meet with?

Mr. Minton: Yes, sir. We would get a detailed line-up as to just when that train was going to get there.

Mr. Sheean: And make your arrangements accordingly?

Mr. Minton: Yes, sir. If it got there at 6:30, we would not deliver the stuff; we would let the day crew do it. We would turn in. If we found out it was going to get there at 6:30 we would turn in at 5:30; but that was hardly ever the case.

Mr. Sheean: I take it from what you say that the men in switching service have no road seniority?

Mr. Minton: No, sir.

Mr. Sheean: Do you have seniority as to running engines—are you promoted to road engines there?

Mr. Minton: No, sir, not from yard service or terminal service; there is no promotion whatever.

Mr. Sheean: So, when anyone enters the service firing a switch engine, he knows the limitations of promotion are in that service just the firing of a switch engine?

Mr. Minton: Yes, sir. Once in a while some man will go from firing a switch engine to firing an engine on the road.

Mr. Sheean: Of course, when he starts in upon the road his seniority as a fireman and hopes for promotion date from that time?

Mr. Minton: Yes, sir, the possibilities do.

Mr. Sheean: The question of where seniority extends, whether it covers yards or whether or not yards shall be one step in road service or not, is dependent upon an agreement between the men and the road on each particular road?

Mr. Minton: I didn't just get that, I don't believe.

Mr. Sheean: Well, it is a part of the schedule, isn't it, on the Texas & Pacific, Mr. Minton, that switch engineers are—

Mr. Minton: Are promoted to the position of road engineers?

Mr. Sheean: Yes, and firemen, in case they can qualify.

Mr. Minton: Firemen are promoted to the position of road firemen, yes, sir. Road firemen are promoted to the position of road engineers. They promote the oldest men to road service all the time.

Mr. Sheean: Now, as to where the seniority rights shall extend, what they shall cover, whether limited to road service, or covering both road and switching service, depends upon the agreement made between the men and the company?

Mr. Minton: Well, we generally get the best we can along those lines.

Mr. Sheean: The whole matter of seniority is covered by agreement, isn't it?

Mr. Minton: Yes, sir, between the company and the men.

Mr. Sheean: The different roads—the employes on different roads have different provisions concerning seniority, as to how wide they shall extend, what territory they shall cover?

Mr. Minton: The other roads I don't know about. I only know that on the Texas & Pacific.

Mr. Sheean: At the time you entered their employ there and went to work as a fireman in the yard, you knew you would have no road rights?

Mr. Minton: Well, I thought I would fire a yard engine a while and then I would go on the road, after I gained some experience, but I found out promotion was so slow on the road, I decided I would stay in the yard.

Mr. Sheean: How long have you been firing there in the yard?

Mr. Minton: I believe it is about eight years.

Mr. Sheean: And you have lived there at Fort Worth all the time?

Mr. Minton: Yes, sir.

Mr. Sheean: That practice of starting in and getting some experience in the yard and again taking up firing on the road is not an unusual practice?

Mr. Minton: Well, on the Texas & Pacific, at that terminal

—I don't know whether a man's experience in the yard would help him a great deal or not. If he is a good fireman, why, he is a good fireman.

Mr. Sheean: This transfer run you have described there is the only transfer that the Texas & Pacific has, is it?

Mr. Minton: Yes, sir. One days and one nights.

Mr. Sheean: One days and one nights?

Mr. Minton: Yes, sir.

Mr. Sheean: And all to this Belt Junction?

Mr. Minton: Yes, sir, it is all to the Belt Junction.

Mr. Sheean: That is all.

RE-DIRECT EXAMINATION.

Mr. Phillips: Mr. Minton, did I understand you to say, that this was the only transfer job the Texas & Pacific Railroad had, or do you mean the only one at Fort Worth?

Mr. Minton: That is the only one they have at Fort Worth. That is what the company calls a transfer job.

Mr. Phillips: But it pays yard rates?

Mr. Minton: Yes, sir, it pays yard rates.

Mr. Sheean: With regard to this seniority proposition, is it not a fact that the committees of your Brotherhood have tried hard, on the Texas & Pacific Railway, to get better conditions for yard firemen?

Mr. Minton: Yes, sir. We made an issue of it, or were about to, on the Texas & Pacific, a few years ago, in order to get the yard firemen's rights extended over the division, as established for the road men. We have one division of 74 miles, the Fort Worth-Baird subdivision, and the men in the Fort Worth yard didn't have seniority there, and it came about that some of our men would be cut off of or knocked out of a regular job there, and there would be men at Mingus that would be younger in the service than what we were, and we would not be permitted to go there and exercise seniority. That rule is changed.

Mr. Phillips: Was that quite recent, within the last two or three years?

Mr. Minton: Yes, sir, within the last two or three years.

Mr. Phillips: Prior to that time wasn't considerable diffi-

culty experienced in getting any recognition at all for the yard firemen?

Mr. Minton: Yes, sir.

Mr. Phillips: Then this regulation of yard firemen's conditions does not rest solely with the firemen's committee, does it?

Mr. Minton: No, sir.

Mr. Phillips: The company has a little to say about it?

Mr. Minton: We get the best conditions we can.

Mr. Phillips: And the company tells you what regulations it will grant?

Mr. Minton: Yes, sir.

Mr. Phillips: Isn't that so with all seniority regulations?

Mr. Minton: Yes, sir, it is with us.

Mr. Byram: You said that this dispute about seniority, extending the rights, was as to whether you should have your seniority extended to other yards on your division?

Mr. Minton: On the same subdivision, yes, sir.

Mr. Byram: It did not include a request to have the yard rights extended to road service, did it?

Mr. Minton: No sir.

Mr. Byram: Would you like to have your seniority rights include road service?

Mr. Minton: Not at the present time. The promotion is too slow. A man has to work too long on the road fireman's extra board.

Mr. Byram: If your seniority of eight years of yard service at Fort Worth was extended to road service, wouldn't that give you a job firing on the road?

Mr. Minton: I just would get a regular engine. That is, now. In the summer I would be on the extra board.

Mr. Byram: You would prefer to stay in the yard and not have any road service seniority?

Mr. Minton: Yes, sir.

Mr. Byram: Why is that?

Mr. Minton: Why do I prefer to stay in the yard?

Mr. Byram: Why do you prefer to stay in the yard instead of taking your rights in the road service?

Mr. Minton: The promotion is slow. A fellow is just living in hopes of promotion is about all I could ever see in it.

The road work is some harder than the yard job, from a physical standpoint.

Mr. Byram: You prefer to remain in the yard at the low rate rather than to take the higher rate in the road service?

Mr. Minton: Yes, sir. I exercised my privilege there. I guess I did. Now, I might never have gotten an opportunity to go on the road, even if I went up there every day and asked for promotion.

Mr. Byram: I thought you said your seniority did not give your any rights—

Mr. Minton: It does not, only just to go up and make an application, the privilege of making a request to the master mechanic.

Mr. Byram: And then if you started it would be as a new man?

Mr. Minton: Yes, start in as a young man.

Mr. Byram: And lose your seniority of eight years?

Mr. Minton: Yes, sir.

Mr. Byram: Are you eligible to promotion as a switch engineer?

Mr. Minton: No, sir.

Mr. Byram: You have no promotion privileges at all?

Mr. Minton: No, sir, none at all.

Mr. Phillips: Is it not a question of "safety first" with you?

Mr. Minton: About going on the road?

Mr. Phillips: Yes, sir. If you went on the road, for example, and relinquished your several years of yard rights, you would only work for a month during some busy season, and then be out of work eleven months?

Mr. Minton: Yes, sir, that would be about the way of it. When I entered service on the Texas & Pacific as a fireman, the panic hit us about that time, the 1907 panic, and it was some years before they re-employed road firemen.

Mr. Phillips: Then, had you, at that time, gone into the road service you could barely hold your job now, and, in the summer time, when the work is dull, you would be an extra man?

Mr. Minton: Yes, sir.

Mr. Phillips: So you have to hang on to what you have got, in self-preservation?

Mr. Minton: Yes, sir.

Mr. Phillips: That is all.

Mr. Nagel: Does the seniority of the road service extend to the yard service?

Mr. Minton: You mean—.

Mr. Nagel: I mean, suppose your seniority in the yard service was extended to include the road service, would it not be mutual, and the seniority in the road service then apply to the yard service as well?

Mr. Minton: There is a separate seniority list.

Mr. Nagel: Yes, I know, but suppose that separation were eliminated, would you not be in danger of losing the place you now have at the instance of some engineer or fireman on the road?

Mr. Minton: I do not believe I just get that meaning.

Mr. Nagel: I do not know whether I have the right impression or not, but I understood you to say that you wanted the seniority of your position,—of the firemen's seniority in the yard, to extend to the road?

Mr. Minton: I do not believe I made that statement, that I desired our seniority to extend on the road.

Mr. Byram: I asked the question, but he did not answer it that way. He did not answer that he did.

Mr. Nagel: But, if it was extended to include the road, then would not the men on the road now have the same right to seniority in the yard service?

Mr. Minton: If that condition prevailed, I suppose they would.

Mr. Nagel: In other words, you would lose the advantage of the present position, if the rule were extended both ways?

Mr. Minton: Yes.

(Witness excused.)

JOHN W. BANSER was called as a witness, and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: Will you please state your full name and place of residence?

Mr. Banser: John W. Banser, Chicago, Illinois.

Mr. Phillips: What is your occupation?

Mr. Banser: Locomotive fireman.

Mr. Phillips: By what company are you employed?

Mr. Banser: Chicago, Western Indiana & Belt Railway of Chicago.

Mr. Phillips: Is that a transfer road or belt line road exclusively?

Mr. Banser: Well, we have transfer, switching, suburban and belt line.

Mr. Phillips: You operate some suburban passenger service?

Mr. Banser: Yes, sir.

Mr. Phillips: Some transfer service?

Mr. Banser: Yes, sir.

Mr. Phillips: And some regular switching service?

Mr. Banser: Yes, sir.

Mr. Phillips: Is a differential made in the rates for firemen, as between transfer service and ordinary switching service?

Mr. Banser: Yes.

Mr. Phillips: What are the rates?

Mr. Banser: 25 cents an hour in yard service, 31 cents per hour on the large engines in transfer service, and 27½ cents an hour on the small size engines in transfer service.

Mr. Phillips: Then you have more classes of engines than one?

Mr. Banser: Yes, sir.

Mr. Phillips: Do they all pay the same rate in yard service?

Mr. Banser: Yes.

Mr. Phillips: But a differential as between the two engines in transfer service?

Mr. Banser: Yes, sir.

Mr. Phillips: When were these differentials established?

Mr. Banser: Why, I believe in 1910.

Mr. Phillips: The differentials now in effect there, as between yard service and transfer service, were established in 1910?

Mr. Banser: That is 2½ cents per hour; but we have got larger engines since that time.

Mr. Phillips: The larger engines have come in since then, have they?

Mr. Banser: They have been coming since 1910. We had some in 1910, and got more since.

Mr. Phillips: And then the rate of 31 cents per hour on these engines was established since that time?

Mr. Banser: We got 37½ cents an hour from the movement in 1910, and they took some away from us.

Mr. Phillips: Well, do you mean through the arbitration of 1910, the Firemen's Arbitration, a rate of 37½ cents for those engines was established?

Mr. Banser: Yes, sir.

Mr. Phillips: Was it paid on those engines?

Mr. Banser: Paid for a while.

Mr. Phillips: For a period of a year, from the time of the award?

Mr. Banser: I believe I got back time for about nine months.

Mr. Phillips: And then a lower rate was put in effect?

Mr. Banser: They reduced us to 27 cents an hour—27½ cents.

Mr. Phillips: Then, did they later increase that rate to 31 cents on that class of engines?

Mr. Banser: Well, when the men put it to an issue they did. They increased it to 31 cents.

Mr. Phillips: But they did not put it back to the 37½ cents an hour established by the Arbitration?

Mr. Banser: No, we considered ourselves lucky getting what we did get.

Mr. Phillips: Have you worked in both day and night yard service, Mr. Banser?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you find the conditions any different working as between days and nights?

Mr. Banser: Yes, sir.

Mr. Phillips: Which is preferable?

Mr. Banser: Days.

Mr. Phillips: Why would you prefer to work days?

Mr. Banser: I don't consider it as dangerous to work days as to work nights, although the work is just about as hard, outside of the danger. I believe I am taking more chances in

my life by night, than I am by day, and I have got to be on the lookout more.

Mr. Phillips: You mean it is harder to distinguish signals, and you have to watch more closely to see lantern signals than you would to transmit hand signals?

Mr. Banser: Yes, sir.

Mr. Phillips: Have you worked also on transfer runs, as between day and night?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you find the same difficulties to encounter in transfer service?

Mr. Banser: Yes, sir, I find it hard to see. That is, the transfer we have got is very hard. It is considered the hardest around Chicago. And, after the fire box door is open for a while, and you look into the fire, you can hardly see for a few seconds after you close the door.

Mr. Phillips: Do you know what rate is paid to switchmen working on these jobs, either yard or transfer?

Mr. Banser: Yes, sir.

Mr. Phillips: What are the rates paid by your company?

Mr. Banser: 35 cents days, and 37 cents nights, for the helpers, and 38 and 40 cents for the conductors, or foremen, a differential of two cents.

Mr. Phillips: That is commonly known as the Chicago switching rate, is it not?

Mr. Banser: Yes, sir.

Mr. Phillips: And these big engines at the $3.75 rate, or the 37½ cents per hour rate that was fixed on by the arbitration award, do you think it is as hard for a fireman to fire one of those engines as it is for a switchman to do the ordinary job of switching he is required to do?

Mr. Banser: Well, I consider a switchman's work hard enough. I believe he is not too well paid for what he does, but a fireman's work I know is awful hard on those engines.

Mr. Phillips: How large are those engines?

Mr. Banser: Why, they range from 190,000 pounds on drivers to 44,000 pounds on drivers.

Mr. Phillips: And do they burn considerably more coal in the course of ten or twelve hours?

Mr. Banser: They burn enough to make you work pretty hard.

Mr. Phillips: How many hours do you work ordinarily?

Mr. Banser: Oh, we have no regular set of hours. Hours from eleven hours up. If we get in eleven hours we think that is an awful short day.

Mr. Phillips: Do you work irregularly in transfer service? That is, are the crews working on transfer service called irregularly?

Mr. Banser: We have some crews that go out at a certain time every morning. Then we have a chain gang crew. They go out and come in whenever the company sees fit to call them.

Mr. Phillips: But you prefer to work regular hours?

Mr. Banser: Yes, sir.

Mr. Phillips: Now, with this differential which exists in switchmen's wages, when does the night rate apply and when does the day rate apply?

Mr. Banser: I believe it is between 6:30 A. M. and 7:30 A. M.

Mr. Phillips: Going to work outside of those hours would necessitate payment of the night rate?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you think that results in quite a considerable number of men going to work within those hours, and therefore working regularly?

Mr. Banser: The majority on the Belt Railroad.

Mr. Phillips: Then the differential that is allowed, is not only for night work, but it is also to compensate men for working irregular hours, is it?

Mr. Banser: Yes, sir.

Mr. Phillips: And if they go to work outside of these regular fixed hours, even though they might work in the daytime, they are paid the differential, because of the irregularity of the hours?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you think the same differential should exist with engineers and firemen, as is in force and effect for switchmen?

Mr. Banser: Yes, sir.

Mr. Phillips: Would you prefer night work to day work with a two cents an hour differential?

Mr. Banser: No, sir.

Mr. Phillips: The differential would have to be bigger than that to make the night job preferable?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you have to throw any switches in your yard, in going to and from your work?

Mr. Banser: Yes, sir.

Mr. Phillips: The fireman has to throw the switches?

Mr. Banser: On some yard jobs, yes, sir.

Mr. Phillips: About how many switches does he throw, ordinarily?

Mr. Banser: If we take an engine from 83rd Street—that is Auburn Park,—to South Chicago, we must throw from eight to twelve switches. We have no man with us whatever.

Mr. Phillips: And taking your engine from your work to the roundhouse, or from the roundhouse to your place of work, you must throw ten or twelve switches en route?

Mr. Banser: Yes, sir.

Mr. Phillips: Is that a hardship on the fireman?

Mr. Banser: Yes, sir.

Mr. Phillips: Do you think it endangers the movement of the engine by having one man on it a part of the way, while the fireman is off throwing switches?

Mr. Banser: Yes, I am pretty sure of it.

Mr. Phillips: Do you think that the engineers feel that that is an imposition on them, to be required to take signals from both sides, for part of the time at least, that the fireman is off throwing switches?

Mr. Banser: I know it, because several times they have attempted to have a man throw the switches.

Mr. Phillips: The company has never seen fit to grant that relief?

Mr. Banser: No, sir.

Mr. Phillips: Have you also worked in suburban service? I understood you to say you had some suburban runs?

Mr. Banser: Yes, sir, I have worked on suburban service.

Mr. Phillips: What is the nature of your suburban work, Mr. Banser?

Mr. Banser: Well, the line I held, we went to work at 4:56 A. M. I had to get up about 3:15 in the morning, and I was due

back in the roundhouse—I was due back at the roundhouse about 10 A. M. But it was seldom that we got there before 10:30, between 10:30 and 11 A. M. Then we were due out of the roundhouse at 2:30. Got back to the roundhouse between 7:30 and 8 P. M. in the evening. During that time we got paid for 123 miles, 123.6 train miles, and ten miles of light running. We don't get as much for running a light engine as we do for pulling a train.

Mr. Phillips: And these light engines you speak of, where the fireman throws the switch, does he get less for that than he does where he is working with a train?

Mr. Banser: On those switch engines, the only time a fireman throws a switch is when he goes for water, but he gets less just the same.

Mr. Phillips: If he made mileage he would get less for that?

Mr. Banser: Yes.

Mr. Phillips: Notwithstanding his additional duties?

Mr. Banser: Yes, sir.

Mr. Phillips: Now, you say you had to leave your home, to get up at 3:15 in the morning, and get back at what time at night?

Mr. Banser: Well, by the time I got home and got my supper it was generally 9:30.

Mr. Phillips: Did you have any time during the day that you were off duty that would enable you to get a rest?

Mr. Banser: No. If I did get to the roundhouse on time, by the time I would get something to eat and get cleaned up a bit and go back, it would be time to get back.

Mr. Phillips: So you had to get your sleep for a run of that kind, between 9:30 P. M. and 3:15 A. M.?

Mr. Banser: Yes, sir.

Mr. Phillips: Do firemen work on that assignment regularly?

Mr. Banser: Yes, sir, I did.

Mr. Phillips: Are you able to get sufficient sleep under such conditions to work along steadily?

Mr. Banser: No, I had to give it up on account of that.

Mr. Phillips: There is no time during the day, of intermission that you have, or space between trips, that would enable

you to go to sleep and get any rest to make up what you lose at night?

Mr. Banser: No.

Mr. Phillips: And you are paid 123 miles at a suburban rate, and then ten miles at a lesser rate for the portion of the distance that you move the engine, light?

Mr. Banser: Yes, sir.

Mr. Phillips: What is that suburban rate, Mr. Banser?

Mr. Banser: $2.95 per 100 miles, or 2.95 cents a mile.

Mr. Phillips: What would this run pay a day, about?

Mr. Banser: About $3.92, including the light run.

Mr. Phillips: For a sixteen hour service then, you were able to make nearly four dollars?

Mr. Banser: Yes, sir.

Mr. Phillips: That would be nearly two dollars for each eight hours, wouldn't it?

Mr. Banser: Yes, sir.

Mr. Phillips: And the hours were so long, the spread of time so great, that you could not remain on that run?

Mr. Banser: No, I never saw my children, that is, I never saw them awake.

Mr. Phillips: Had no time to spend with your family or at your home when the members of your family were there, and awake?

Mr. Banser: No, I was home on Sundays and then I would want to sleep all day.

Mr. Phillips: The run did not operate Sunday?

Mr. Banser: No.

Mr. Phillips: Has there been the same increased cost of living in your case as has been experienced by other witnesses, Mr. Banser?

Mr. Banser: I do not look after that. My wife does that. But she complains a good deal.

Mr. Phillips: That is pretty good evidence, is it not?

Mr. Banser: You bet it is.

Mr. Phillips: Does it take about all you make to support your family?

Mr. Banser: It takes it all.

CROSS EXAMINATION.

Mr. Sheean: Mr. Banser, where does this suburban run start from, and where does it go to?

Mr. Banser: From Dearborn station to Dolton.

Mr. Sheean: That is leaving Dearborn station at what time?

Mr. Banser: We leave the roundhouse at 4:56.

Mr. Sheean: And the train is due to leave Dearborn station at what time?

Mr. Banser: We go from the roundhouse to Fernwood light. From Fernwood to Oakdale we take a train to Dolton. From Dolton to the city. Then make a full round trip from the city to Dolton.

Mr. Sheean: I just wanted to get what spread of time there was there. 4:56 you went to work at the roundhouse. Then you started from Fernwood at what time, about? I don't care for the exact schedule.

Mr. Banser: It was somewhere near 6 o'clock.

Mr. Sheean: And running to Dolton is how many miles?

Mr. Banser: It is about eight miles from Fernwood.

Mr. Sheean: And reached there about when?

Mr. Banser: Well, I don't believe I can state the exact time. I have not the time card.

Mr. Sheean: Well, then, do you happen to remember when you left Dolton in the morning on the first run to the city?

Mr. Banser: 6:30.

Mr. Sheean: 6:30?

Mr. Banser: About that.

Mr. Sheean: And reached Chicago at what time, Dearborn station?

Mr. Banser: Just a little after seven.

Mr. Sheean: Then when was your next run out?

Mr. Banser: Went right out.

Mr. Sheean: Right out from Dearborn station?

Mr. Banser: From Dearborn station.

Mr. Sheean: To Dolton?

Mr. Banser: To Dolton and return.

Mr. Sheean: And return? And then delivered your engine, if you were on time, at 10 o'clock, at the roundhouse?

Mr. Banser: We were due in the depot at 9:35 the last trip, but we very seldom got in on time. But from the depot we had to take our engine to the roundhouse.

Mr. Sheean: The roundhouse at what point?

Mr. Banser: 49th Street.

Mr. Sheean: Then when you delivered the engine at the roundhouse at 10 or 10:30, you were released until 2:30 that day?

Mr. Banser: Yes.

Mr. Sheean: If the train was on time, your responsibility ended at 10 o'clock—about 10 o'clock?

Mr. Banser: Provided it was on time, but that very seldom happened.

Mr. Sheean: And the time you reported for duty was 2:30 in the afternoon?

Mr. Banser: I was supposed to leave at 2:30. I reported before.

Mr. Sheean: Leave the roundhouse?

Mr. Banser: Yes, sir. Generally on the engine twenty or twenty-five minutes before, to see that everything was all right.

Mr. Sheean: From the roundhouse you came to Dearborn station, did you?

Mr. Banser: Yes, sir.

Mr. Sheean: Due to leave Dearborn station at what time?

Mr. Banser: 3:15 is the time they left at that time.

Mr. Sheean: Then made two other round trips to Dolton?

Mr. Banser: We made a round trip to Dolton, and then we went to Dolton and came back to Fernwood, and came from Fernwood to 49th Street light.

Mr. Sheean: And that train ran every day except Sunday?

Mr. Banser: Every day except Sunday.

Mr. Sheean: Where did you live at that time?

Mr. Banser: I lived at 81st and Normal Avenue at that time.

Mr. Sheean: So that you were living some several miles from your place of work?

Mr. Banser: Yes. Well, a short time ago they had those engines run from 83rd Street roundhouse. It was convenient for all of us at that time.

Mr. Sheean: At 83rd?

Mr. Banser: At 83rd. And then for some reason or other

they transferred all those engines to the 49th Street roundhouse.

Mr. Sheean: Now, you spoke of having to throw switches in going from the 83rd Street roundhouse down to South Chicago. What is the distance there that your engine runs light before it picks up the train crew?

Mr. Banser: I should judge five miles.

Mr. Sheean: South Chicago is what? 92nd street?

Mr. Banser: No, it is—it comes in a little higher than that, the South Chicago yard.

Mr. Sheean: Well, you start from 83rd and run as far as South Chicago, and there a train crew is picked up?

Mr. Banser: Yes, sir.

Mr. Sheean: That is a transfer run, is it, or merely switching service?

Mr. Banser: Switching service.

Mr. Sheean: The yard in which the switching is done is the South Chicago yard?

Mr. Banser: Yes, sir.

Mr. Sheean: And the yard men report at South Chicago?

Mr. Banser: Yes, sir.

Mr. Sheean: Go to work and do all of their work at South Chicago. The engineer and fireman starting out from the roundhouse at 83rd, take an engine light from 83rd to the yard at South Chicago?

Mr. Banser: Yes, sir.

Mr. Sheean: And in making the run from the roundhouse to South Chicago, the firemen throw the switches?

Mr. Banser: Yes, sir.

Mr. Sheean: Is that the only switch throwing that you know of, where the firemen—switch throwing by the firemen, where the engine is being taken from the roundhouse to the yard at which it is going to work?

Mr. Banser: No. There is many a time when they will want to take an engine some place for some reason or other; they don't call a man to throw switches. They leave it to the fireman.

Mr. Sheean: That is, in the case of an engine going out on some special trip, is it?

Mr. Banser: Yes, but they go on the main line and everything and have no man with them to protect the engine.

Mr. Sheean: Is there any case in the regular operation of that road, except the one case that you speak of, where the engine is taken from the roundhouse at 83rd street, to the South Chicago yard, in which this is regularly done?

Mr. Banser: No, not that I think of at the present time.

Mr. Sheean: And how many yard engines are there that work in the South Chicago yard that are taken from the 83rd street roundhouse?

Mr. Banser: Well, there are about six or seven engines working down there, and as a rule there are two and three go out and in every night and morning.

Mr. Sheean: The roundhouse at 83rd street is the nearest roundhouse that the Western Indiana Railroad has to South Chicago, is it not?

Mr. Banser: Yes, sir.

Mr. Sheean: In this award of 1910, what was the heaviest engine that the Western Indiana had at that time, weight on drivers?

Mr. Banser: It was either 190,000 or 195,000 pounds on drivers.

Mr. Sheean: 195,000 pounds on drivers?

Mr. Banser: I think that is about it.

Mr. Sheean: What rate was being paid by the Western Indiana on that engine before the Arbitration of 1910?

Mr. Banser: Well, we just got those engines a short time before this Arbitration Award was made.

Mr. Sheean: What rate was being paid there, about?

Mr. Banser: 27½ cents.

Mr. Sheean: This award was made on a cylinder basis, was it not?

Mr. Banser: Yes, sir.

Mr. Sheean: And it took the rate of $3.75 merely because it had a 24-inch cylinder, did it not?

Mr. Banser: Yes, sir.

Mr. Sheean: And that rate of $3.75 the Chicago & Western Indiana paid during this time that was covered by the Award?

Mr. Banser: I don't believe they paid it for the full year.

Mr. Sheean: Well, you say you got nine months' back pay?

Mr. Banser: Nine months, yes, sir; I don't think they paid it much more than that.

Mr. Sheean: Well, the award, as you know, covered the period of one year's time.

Mr. Banser: Yes, sir, I understand.

Mr. Sheean: Now, Mr. Banser, do you wish to be understood as saying that they continued to operate any of these engines beyond the period of time covered by the Award without paying the rate which the Award called for?

Mr. Banser: I said I believed it was nine months; I did not say it was exactly nine months.

Mr. Sheean: Well, I want to have that matter perfectly clear of record. If you have any doubt about the question, of course we want to go into it thoroughly.

Mr. Banser: Well, I do doubt it.

Mr. Sheean: As to whether or not the amount that was paid covered the entire term covered by the award?

Mr. Banser: I have some doubts.

Mr. Sheean: But you know personally that it was paid for a period of nine months?

Mr. Banser: Yes.

Mr. Sheean: And the company promptly served notice, did it not, that just as soon as the period of the award was over, it would not pay a rate based on this cylinder basis?

Mr. Banser: I don't know; I was not as deeply interested at that time as I am now; that is, I did not make it my business to know everything that was going on.

Mr. Sheean: But you do know that for two years or more the company has been paying and the men have been accepting 27 cents and 37½ cents an hour instead of the $3.75 a day rate which would be fixed by the cylinder basis?

Mr. Banser: Well, there was nothing else for them to do; they had to accept it.

Mr. Sheean: Have you compared this proposal, at this time, on a weight on drivers basis, to see how widely the rate differs when it is put on a weight on drivers basis from what it would be on the cylinder basis that the men insisted on in 1910, as being right?

Mr. Banser: No, sir.

Mr. Sheean: But any other railroad which continued to pay the rate on the cylinder basis which was fixed by the award

of 1910, which is higher than the rate on a driver basis, would have to continue to pay that rate?

Mr. Banser: From what I understand, yes.

Mr. Sheean: You do know, as a matter of fact, that what the men obtained on the cylinder basis in that award of 1910 was very much higher in many cases than the amount proposed on a weight on drivers basis, do you not?

Mr. Banser: Well, I don't know; it is pretty hard to say.

Mr. Sheean: You do not know about that?

Mr. Banser: No.

Mr. Sheean: Were these superheated engines, any of them, on the Western Indiana?

Mr. Banser: We have ten or twelve.

Mr. Sheean: Ten or twelve superheated engines?

Mr. Banser: Yes, sir.

Mr. Sheean: What is the fact about the cylinder being larger or smaller on a superheated engine than it is on a saturated steam engine?

Mr. Banser: I don't understand.

Mr. Sheean: Is the cylinder dimension the same on a saturated engine as it is on a superheated engine?

Mr. Banser: It is on these.

Mr. Sheean: Just the same, whether you have the superheater attachment or not?

Mr. Banser: Yes.

Mr. Sheean: Is the weight on drivers the same?

Mr. Banser: The superheaters are a little bit heavier, I think.

Mr. Sheean: A little heavier on drivers?

Mr. Banser: Yes, sir.

Mr. Sheean: But the same cylinder?

Mr. Banser: Yes, sir.

Mr. Sheean: You cannot fix any date as to when the rate of 37½ cents went in or when it was taken out on the Western Indiana?

Mr. Banser: No, I cannot at the present time.

Mr. Sheean: What work is it you are doing now, yard or—

Mr. Banser: I am doing everything now. Until the 22nd, when the Board adjourned, I went back home and worked a few

days and I have been running extra during the holidays, in order to let some of the older men off.

Mr. Sheean: I did not mean just this minute, but before this Arbitration began.

Mr. Banser: I was firing construction.

Mr. Sheean: How long were you working on that construction train?

Mr. Banser: I worked on construction for twelve days, but up until that time I had had a pusher; I had fired the pusher from June 1st, and my reason for giving up the pusher was because it was taken out of service, the engine was taken out of service.

Mr. Sheean: And you then selected this construction work?

Mr. Banser: Yes, sir.

Mr. Sheean: That construction work on the Western Indiana, is that inside the city limits?

Mr. Banser: Yes, sir.

Mr. Sheean: Is that in track elevation work?

Mr. Banser: Yes, sir.

Mr. Sheean: What work does the fireman do? Is that on a ten hour day in the construction work?

Mr. Banser: Ten hours or less constitutes a day, but we very seldom make less than thirteen hours.

Mr. Sheean: On the construction work?

Mr. Banser: Yes, sir.

Mr. Sheean: And just what do you do; what do the engineer and fireman do on that construction work, on track elevation here; about how many miles a day?

Mr. Banser: It was not the number of miles that I made on this construction. I had what they call a sand spreader, something similar to a snow plow; you would go up to a bank of sand and spread out this sand, which took the place of a good many men with shovels, you know; it was pretty hard.

Mr. Sheean: How many hours a day would you be spreading sand?

Mr. Banser: Well, it all depended on how many cars they would unload; and if we were not spreading sand we would be doing something else, going to get a train of sand or something like that.

Mr. Sheean: That work continued from June on, did you say?

Mr. Banser: No, I said I was only on there twelve days.

Mr. Sheean: Oh, the pusher work was from June?

Mr. Banser: Yes, sir.

Mr. Sheean: And what is that pusher work, is that in one of the Western Indiana yards?

Mr. Banser: It was no yard work. They were elevating over some of the city streets and the city forced them to put on a pusher engine, because they would always stall on the hill and block traffic.

Mr. Sheean: This was in connection with getting up on the elevated track?

Mr. Banser: Yes, sir.

Mr. Sheean: And your work was just taking them up on the elevated track?

Mr. Banser: Yes, sir, we had to shove all trains, foreign trains as well as our own.

Mr. Sheean: And your work was the assignment of helping them up over this one hump and onto the elevated track?

Mr. Banser: Yes, sir.

Mr. Sheean: What kind of an engine was used there; what rate did it take?

Mr. Banser: 27 cents an hour; it weighed 170,000 pounds on drivers.

Mr. Sheean: With reference to this night and day operation in yards, is it not a fact that the rule in yard operation as to yard men is uniform as to all the roads in the Chicago district?

Mr. Banser: Well, now, I don't quite understand what you mean.

Mr. Sheean: Well, the night and day differential as to yard men, whereby the switchmen in yards are paid more on the night crew than the day crew, that covers all the yards in the Chicago switching district, does it not?

Mr. Banser: I believe it does.

Mr. Sheean: And it has covered them back a good many years, has it not?

Mr. Banser: As far back as I can remember.

Mr. Sheean: As far back as you have been railroading?

Mr. Banser: Yes, sir.

Mr. Sheean: Is not the provision as to them, that night yard men are to start work at 7 P. M., so far as conditions will permit?

Mr. Banser: Well, now, I cannot say that on our road, because we go out all hours of the day. There are very few engines that are double crewed. I believe I would be exaggerating if I said fifteen engines were double crewed. They go out whenever the company sees fit to call them, whenever they believe they have work enough for them.

Mr. Sheean: And under the provision of ten hours or less, it is ordinarily the case that the men will continue to work at least ten hours or perhaps more?

Mr. Banser: Yes, sir; mostly more.

Mr. Sheean: Mostly more?

Mr. Banser: Yes, sir.

Mr. Sheean: So that, as a matter of convenience, it has been agreed, has it not, that yard men started at other hours than between 6:30 and 8 o'clock in the morning, will be paid a night rate?

Mr. Banser: If they start other than between that space of time, they are paid night rates.

Mr. Sheean: So that a man starting after 8:30 o'clock in the morning and working a twelve-hour shift, will be working until 8:30 at night?

Mr. Banser: He gets night pay.

Mr. Sheean: He gets night pay if he starts any time after 8:30 in the morning?

Mr. Banser: Yes.

Mr. Sheean: The spread is from 6:30 in the morning until 8, isn't it?

Mr. Banser: No, I don't think so. If they go to work at 8:05 they get night pay.

Mr. Sheean: I said 8:30, I misspoke myself. The spread is from 6:30 until 8.

Mr. Banser: It is 6:30 or 6:30 to 7:30. I know 6:30 is one set hour and it is either 7:30 or 8 the other.

Mr. Sheean: You know the beginning of the spread is 6:30?

Mr. Banser: I know that.

Mr. Sheean: You are not clear whether the end of it is 7:30 or 8?

Mr. Banser: I am not clear, no.
Mr. Sheean: That is all.
Mr. Phillips: I have nothing further.
The Chairman: Call your next witness.

R. A. CHAPMAN was called as a witness and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Phillips: State your name and place of residence.
Mr. Chapman: R. A. Chapman, Chicago, Illinois.
Mr. Phillips: What work do you follow, Mr. Chapman?
Mr. Chapman: Suburban passenger.
Mr. Phillips: As a fireman?
Mr. Chapman: Yes, sir.
Mr. Phillips: By what road are you employed?
Mr. Chapman: Illinois Central.
Mr. Phillips: Are you employed exclusively in suburban passenger service or are you only filling an assignment of that kind at this present time?
Mr. Chapman: Well, I hold a regular job firing; a suburban job.
Mr. Phillips: Do you hold yard rights in addition to your rights on the suburban passenger job?
Mr. Chapman: Yes, sir.
Mr. Phillips: Do you also hold road rights?
Mr. Chapman: Yes, sir.
Mr. Phillips: Then, under the rules of the Illinois Central Railroad, a fireman, by reason of his seniority or length of time in service, is entitled to yard work, transfer work, suburban passenger work and main line work, either freight or passenger?
Mr. Chapman: Yes, sir.
Mr. Phillips: What hours do you work on your suburban passenger run?
Mr. Chapman: Well, our combinations are spread out ranging from 11 hours and 30 minutes to 18 hours and 30 minutes.
Mr. Phillips: Do you work continuously that length of time?

Mr. Chapman: No, sir, there is some part of the combination that we are off ranging from one to seven hours.

Mr. Phillips: From one to seven hours, did you say?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do some of those combinations, I believe you called them, the arrangement of the runs—

Mr. Chapman: Yes, sir.

Mr. Phillips:—that are operated in suburban service?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do some of those combinations begin work at night and others begin in the morning or early part of the day?

Mr. Chapman: Yes, sir.

Mr. Phillips: And whether they begin at night or whether they begin in the morning, they operate over a spread of from eleven to eighteen hours, with periods of release from one to seven hours at different points within those limits?

Mr. Chapman: Yes, sir.

Mr. Phillips: What is the time of the run on which you are employed at the present time?

Mr. Chapman: Well, I go to work, leave Randolph street at 7:20 A. M., and I am through at 6 P. M. This job has no time off in the middle of the day.

Mr. Phillips: From 7:20 A. M. to 6 P. M?

Mr. Chapman: Yes, sir.

Mr. Phillips: That is 11 hours and 40 minutes, is it not?

Mr. Chapman: Yes, sir.

Mr. Phillips: 10 hours and 40 minutes I think is correct, Mr. Chapman?

Mr. Chapman: Yes, I believe that is correct.

Mr. Phillips: You don't want to have too much confidence in what I say, because I may make a statement that is entirely wrong, and I want you to watch me and correct me.

Mr. Chapman: All right.

Mr. Phillips: And that run you have no relief at all?

Mr. Chapman: No, sir.

Mr. Phillips: So you work continuously throughout the 10 hours and 40 minutes?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do you have to report any time before your work begins?

Mr. Chapman: Yes, sir.

Mr. Phillips: How long?

Mr. Chapman: We are required to back down from the roundhouse thirty minutes in advance of the leaving time of the train and to report ahead of that in time enough to get the engine ready for service.

Mr. Phillips: You say in time enough to get the engine ready for service. About how much time does that mean?

Mr. Chapman: About twenty minutes to thirty minutes.

Mr. Phillips: Then you are required to be there from twenty to thirty minutes before you leave the roundhouse?

Mr. Chapman: Yes, sir.

Mr. Phillips: And then back down to be ready on the train thirty minutes before leaving time?

Mr. Chapman: Yes, sir.

Mr. Phillips: When does your pay begin?

Mr. Chapman: When we leave.

Mr. Phillips: At 7:20?

Mr. Chapman: Yes, sir.

Mr. Phillips: So you put in from thirty to fifty minutes before that, for which no compensation is received?

Mr. Chapman: Yes, sir.

Mr. Phillips: How far do you move your engine from the roundhouse to the station where you depart?

Mr. Chapman: Three miles.

Mr. Phillips: Have you anybody with you to throw the switches, if switches are to be thrown?

Mr. Chapman: There are no switches to be thrown.

Mr. Phillips: The engineer and firemen take the engine and move that distance alone, do they?

Mr. Chapman: Yes, sir. There may be one at the roundhouse, right at the coal chute, but none others.

Mr. Phillips: If there is one there the fireman would be required to throw it?

Mr. Chapman: Yes, sir.

Mr. Phillips: And none after you get out on the main track?

Mr. Chapman: Well, it is not a main track. It is a lead,

but there are no switches in it after you get a block and a half away from the roundhouse.

Mr. Phillips: All switches which may join this lead are all found lined up for you to come down?

Mr. Chapman: Yes, sir.

Mr. Phillips: And you have none to throw?

Mr. Chapman: No, sir.

Mr. Phillips: You say forty or fifty minutes are consumed in this work?

Mr. Chapman: Fifty minutes.

Mr. Phillips: Fifty minutes ordinarily?

Mr. Chapman: Yes, sir.

Mr. Phillips: For which you receive no pay?

Mr. Chapman: No pay at all.

Mr. Phillips: If you got into trouble or any damage was caused, would you not be disciplined, both the fireman and the engineer, for anything that might happen between the roundhouse and the passenger station?

Mr. Chapman: Yes, sir.

Mr. Phillips: The rules of the company would subject you to discipline just the same as if you were under pay?

Mr. Chapman: Yes, sir.

Mr. Phillips: Now, how long do you leave your home before you get down to the roundhouse—what time do you have to get up in the morning to get on this run?

Mr. Chapman: Well, I have got to get up about an hour before the time required to report at the roundhouse, and that would make about an hour and a half or an hour and fifty minutes.

Mr. Phillips: Now, after your day's work is completed, at 6 P. M., are you entirely relieved then, or do you have to take your engine back to the roundhouse?

Mr. Chapman: Well, on this job I have I am most generally at the roundhouse at that time.

Mr. Phillips: And your pay stops when you get to the roundhouse?

Mr. Chapman: Yes, sir, it stops at 6 o'clock.

Mr. Phillips: Your pay does not stop when you return to the station?

Mr. Chapman: On that job I am working by the hour the last few hours of the day.

Mr. Phillips: On overtime?

Mr. Chapman: No, it was extra work. A few hours at the last that I am held for extra work.

Mr. Phillips: How are you paid for this service, Mr. Chapman, in its entirety?

Mr. Chapman: Well, we are paid by the trip, so much a trip, and then extra hours by the hour, 24½ cents an hour.

Mr. Phillips: After the last trip?

Mr. Chapman: After the last trip.

Mr. Phillips: That would not apply to intermediate trips, would it?

Mr. Chapman: No, sir.

Mr. Phillips: But after the last trip, under certain conditions, you are paid extra hours in addition?

Mr. Chapman: Yes, sir.

Mr. Phillips: About what do you make on that run, Mr. Chapman?

Mr. Chapman: That job pays me $3.33.

Mr. Phillips: $3.33 a day?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do you work Sundays?

Mr. Chapman: No, sir, not on that job.

Mr. Phillips: That is a preferred job?

Mr. Chapman: Well, it is the best job in the service.

Mr. Phillips: How long have you worked for the railroad company?

Mr. Chapman: Twelve years and about four months.

Mr. Phillips: Are you a promoted man?

Mr. Chapman: Yes, sir.

Mr. Phillips: How long have you been promoted?

Mr. Chapman: Eight years and four months.

Mr. Phillips: So it requires twelve years of seniority and more, as a fireman, and eight years and more of seniority as an engineer, in order to get that job that pays you $3.33 a day, for working about twelve hours?

Mr. Chapman: Yes, sir.

Mr. Phillips: And that is a job as a fireman?

Mr. Chapman: Yes, sir.

Mr. Phillips: Are there other men who have worked about as long as you have, either a little longer or not quite so long, in about the same condition, on the Illinois Central?

Mr. Chapman: Yes, sir.

Mr. Phillips: You have many engineers set back, firing, and they take the best jobs that they can get?

Mr. Chapman: Yes, sir.

Mr. Phillips: In addition to this work, are you called upon, from time to time, to run emergency as an engineer?

Mr. Chapman: Yes, sir.

Mr. Phillips: When there are no engineers on the engineers' extra list, then they take you or any fireman holding a similar job, and use you as an extra engineer?

Mr. Chapman: Yes, sir.

Mr. Phillips: By being used occasionally as an engineer in that manner, and as a fireman constantly, with the twelve years' rights and the good job it gives you, what do your wages average during the year?

Mr. Chapman: Well, last year, I averaged about $95 a month.

Mr. Phillips: For the entire year?

Mr. Chapman: For the entire year.

Mr. Phillips: Have you felt the pinch of this general increased cost of living, as has been described by some other witnesses?

Mr. Chapman: Yes, sir, I have.

Mr. Phillips: It costs you more to live, right here in Chicago, than it did two or three or four years ago, does it?

Mr. Chapman: Yes, sir.

Mr. Phillips: How do you know that?

Mr. Chapman: Well, my general house expenses have increased I judge ten or fifteen dollars a month in the last four years.

Mr. Phillips: You think that increase is general, do you?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do you live any better—do you think that accounts for it?

Mr. Chapman: No, sir, I think I am living just about the same.

Mr. Phillips: You do not indulge in any luxuries or anything that is not necessary to your health and welfare?

Mr. Chapman: No, sir.

Mr. Phillips: I just want to ask you another question about these transfer runs, Mr. Chapman—I should say suburban runs. You say the one you hold is called a preferred job, that you are able to get with your twelve years and a half or twelve years and four months seniority?

Mr. Chapman: Yes, sir.

Mr. Phillips: Are some of the other combinations more arduous or more disagreeable, owing to the hours and the spread of time consumed?

Mr. Chapman: Yes, very much so. Some of them are spread out so a man is required to go back home a second time in order to get enough sleep. You get up and do part of your combination, and then, to be able to get from three to five hours sleep, you go to bed again, and then get up and complete the combination, and go to bed and get another couple of hours sleep.

Mr. Phillips: So that you get your sleep on the installment plan?

Mr. Chapman: Get it on the installment plan. You have got to go to bed two times a day to get your sleep.

Mr. Phillips: Still, your compensation for this combination which covers a period of from eleven to eighteen hours, is all figured in one calculation, is it?

Mr. Chapman: Yes, sir.

Mr. Phillips: Although you have to have two periods of rest or sleep within that time?

Mr. Chapman: Yes, sir.

Mr. Phillips: That is, within the 24 hour period, to enable you to work out the full combination?

Mr. Chapman: Yes, sir.

Mr. Phillips: Do you believe it could be arranged so that these runs could be handled in a manner more satisfactory to the men?

Mr. Chapman: Why, I believe, they could.

Mr. Phillips: Do you think it could be arranged so that the morning rush could be handled by crews who would work for a reasonable period in the morning, and then the night rush by a set of crews who would work a reasonable number of hours at

night, and that enough men would cover the intermediate period in addition, so that they would not all be working different periods?

Mr. Chapman: I think it could be arranged by letting men go light between these different points, and bring in these trains that these men are required to get up in the morning and bring in.

Mr. Phillips: Well, on a trip rate basis that you speak about, could a man live if he only made one or two of these trips a day?

Mr. Chapman: No, sir.

Mr. Phillips: A fireman could not earn enough to live on if he worked a reasonable number of hours, so he has to work over this spread or combination of from eleven to eighteen hours in order to earn $90 to $100 a month, as a combination engineer and fireman?

Mr. Chapman: No, sir. While these combinations consist of three and four runs for each combination, if they were bunched in eight or ten hours, it would be possible to earn enough. With less runs than we have in these combinations, it would be impossible to make a living wage out of them.

Mr. Phillips: You don't think, for a reasonable number of hours, under the present conditions, a man could make a living wage?

Mr. Chapman: No, sir.

Mr. Phillips: That is all.

CROSS EXAMINATION.

Mr. Sheean: What is the distance from 67th street to Randolph street, or take it for the round trip, how many miles run are there—67th street and return?

Mr. Chapman: 8.1 miles.

Mr. Sheean: 8.1 miles?

Mr. Chapman: Yes, sir. That is one way.

Mr. Sheean: One way?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the present schedule provides for one of those trips, 65 cents, does it not?

Mr. Chapman: Yes, sir.

Mr. Sheean: To South Chicago and return is what distance?

Mr. Chapman: 25 miles, and return.

Mr. Sheean: How long does it take to run to South Chicago, on an express train?

Mr. Chapman: 35 minutes.

Mr. Sheean: And the same length of time back?

Mr. Chapman: Yes, sir, over the express track.

Mr. Sheean: So that that round trip, which pays 80 cents, is done in a running time of 70 minutes?

Mr. Chapman: Yes, sir.

Mr. Sheean: All of these trips are specified in the schedule, are they not, as to how much per trip shall be paid?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the schedule, for many years, has provided that the combination of the trips shall be made up on the 1st of May and on the 1st of November?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the way in which they are combined, after they are combined, the men bid in the particular combinations that best suit them?

Mr. Chapman: Yes, sir.

Mr. Sheean: Do you know whether or not the management has, through all these years, taken up with those engaged in that suburban service the arrangement of these trips, so that the combinations shall be most satisfactory to the men?

Mr. Chapman: Yes, sir, they have tried to do that.

Mr. Sheean: And you have how many, sixteen combinations?

Mr. Chapman: No, sir, we have got 39 combinations.

Mr. Sheean: And the combinations as they exist are the result of negotiations between the men involved in that service and the management?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the arrangement is made so as to best suit the convenience of the men, in so far as their convenience can be suited and this business transacted?

Mr. Chapman: Well, it is handled that way, as far as you can, without doing anything outside of the work; that is, they won't let us run light anyway to make the jobs better that way.

Mr. Sheean: That is, there are so many trains in this suburban service that are run in each direction, in a period of 24 hours?

Mr. Chapman: Yes, sir.

Mr. Sheean: There are just so many coaches and just so many engines that do that?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the management is willing that the men should arrange the combination of those runs out to 67th Street, South Chicago, to Kensington and in any of the other suburban service, in such a way as will most satisfactorily meet the convenience of the men?

Mr. Chapman: Yes, sir.

Mr. Sheean: And that has always been the arrangement there?

Mr. Chapman: Yes, sir.

Mr. Sheean: Outside of paying arbitraries for running light, as you put it, do you know of any particular criticism, at this time, of the arrangement of the runs or combinations here?

Mr. Chapman: They are arranged as good as can be done, I think, without any right to run light from these different points.

Mr. Sheean: You have made no suggestion about what change in your judgment, if any, ought to be made as to the trip basis—you think that is the only fair way to combine these trips —I mean, in the peculiar way in which they operate here?

Mr. Chapman: Yes, sir.

Mr. Sheean: The fairest way in operating this service is to make it so much per trip?

Mr. Chapman: Yes, sir.

Mr. Sheean: And then combine them in such a way as to combine the short and the long and the fast and the slow?

Mr. Chapman: Yes, sir.

Mr. Sheean: And that is done?

Mr. Chapman: Yes, sir.

Mr. Sheean: About how much coal do you burn on one of these days, from 7:20 in the morning until 6 o'clock at night?

Mr. Chapman: Well, on a suburban engine we will burn, on the average, eight tons of coal.

Mr. Sheean: Eight tons of coal a day?

Mr. Chapman: Yes, sir.

Mr. Sheean: About how many miles do you run—or perhaps you did not keep the miles, because of its being trips.

Mr. Chapman: Well, I have the miles for these combinations.

Mr. Sheean: That combination you are on?

Mr. Chapman: The one I have. I only make one round trip. That is the Matteson trip, that is about 61 miles, and then I work the eight hours extra work.

Mr. Sheean: You take this trip out west?

Mr. Chapman: No. I go to Matteson.

Mr. Sheean: And you have only one round trip a day?

Mr. Chapman: Yes, sir. That is the combination I am working at present.

Mr. Sheean: Now, the schedule makes provision that after the completion of any of these combinations, that the men arrange as fairly representing a day's work—that if they run beyond that they shall be paid additionally?

Mr. Chapman: Well, if they make any other trips outside of the combination, they are paid additionally.

Mr. Sheean: They are paid a minimum day, aren't they, if they do any road running at all?

Mr. Chapman: Yes, sir.

Mr. Sheean: Yet the combination is what they have agreed upon as fairly representative of a day's work?

Mr. Chapman: Yes, sir.

Mr. Sheean: Does this train run on Sundays?

Mr. Chapman: No, sir.

Mr. Sheean: The one you are on?

Mr. Chapman: Yes, sir.

Mr. Sheean: So when you speak of earning about $95 a month, that has been on this run working six days in the week.

Mr. Chapman: No, that is including what running I have been doing. That job would pay me $86 a month.

Mr. Sheean: $86 a month?

Mr. Chapman: Yes, sir.

Mr. Sheean: Working every day?

Mr. Chapman: Except Sundays.

Mr. Sheean: Except Sundays?

Mr. Chapman: Yes, sir.

Mr. Sheean: In this position that you hold of catching an occasional passenger run, it has run about $95 per month during the last year?

Mr. Chapman: Yes, sir.

Mr. Sheean: And outside of laying off Sundays, have there been other lay-offs during that period?

Mr. Chapman: Yes, sir.

Mr. Sheean: Just in the most general way, Mr. Chapman, state about what that would be?

Mr. Chapman: Well, I judge, altogether, about four or five weeks, but that average is not—

Mr. Sheean: What is it?

Mr. Chapman: I would average $95 if I would have worked this time that I was laying off.

Mr. Sheean: Didn't you in fact draw from the company—receive, about $95 or more per month through the whole year?

Mr. Chapman: No, sir.

Mr. Sheean: Have you a memorandum as to how much you did receive?

Mr. Chapman: Yes, sir.

Mr. Sheean: During the last year what was your total pay for the year?

Mr. Chapman: January, $97.80. February, $89.29.

Mr. Sheean: Now, have you any memorandum of how long you laid off in those months?

Mr. Chapman: Yes, sir.

Mr. Sheean: As you go along, if you will just read the two in connection.

Mr. Chapman: I was off two days in January.

Mr. Sheean: And you drew what?

Mr. Chapman: $89.

Mr. Sheean: In February you drew $89?

Mr. Chapman: $89.

Mr. Sheean: How many days were you off?

Mr. Chapman: Three days.

Mr. Sheean: In March you drew how much?

Mr. Chapman: $97.54.

Mr. Sheean: What about lay-offs?

Mr. Chapman: I was off two Sundays. In April I drew $80.95 and I was off five days.

Mr. Shea: As to those five days, did they include any Sundays?

Mr. Chapman: Yes, sir, five days in the month.

Mr. Shea: How many Sundays were included in those five days that you were off?

Mr. Chapman: Three.

Mr. Shea: That is all.

Mr. Chapman: May, $77.55, and I lost three Sundays.

Mr. Sheean: Well now, just what was the work on that, Mr. Chapman—I understood you had a run that paid you eighty some dollars a month, with four Sundays off?

Mr. Chapman: Well, I have had this job since the last change in combinations. That took effect about two months ago.

Mr. Sheean: November 1st?

Mr. Chapman: Yes. The job I had before that paid me $3.19 a day. We change combinations every six months.

Mr. Sheean: Have you the total there that you can give, the total number of days laid off through the year?

Mr. Chapman: No, I cannot. It is scattered through. Those Sundays and maybe one or two days.

Mr. Sheean: Now, if we can make it clear whether or not, in arriving at your $95 per month, during the last year, you did in fact take the average from what you drew and not from what you might have earned, if you worked the whole year, isn't it a fact that the $95 is the average of what you drew in money during the year?

Mr. Chapman: No, sir.

Mr. Sheean: How did you get at the average of $95; was it by adding up these amounts?

Mr. Chapman: Well, I worked and drew about so much every month, and where I lost more time my month's wages would go down to $40 or $60; but if I would work on my regular job, I would make that much money.

Mr. Sheean: Well, then, let us carry it on through; we have got only the first three months—the time for which you actually drew.

Mr. Chapman: April I drew $80.95, and I lost one day on my regular job and did not work any Sundays at all. In May I drew $77.55, and I worked one Sunday. Lost three days that month, worked all the other days. In June I made $81.55. I

lost one day from my regular job and did not make any Sundays at all. That is five days off that month. In July I worked only the first twelve days, and I drew $31.

Mr. Sheean: Only worked twelve days?

Mr. Chapman: Yes, sir. And in August I drew $95.27. I was off three days, that is, three Sundays. In September I worked the first nineteen days and drew $53.33. I was off the last ten days. I worked the last twelve days of October and drew $48.73, and a couple of those days I was running.

Mr. Sheean: Now, these lay-offs were about your own affairs, were they?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the long lay-off there of about a month was not because of any change in the company's assignment, but purely your own personal matters?

Mr. Chapman: Yes, sir.

Mr. Sheean: You have run other combinations than the one you have now to Matteson?

Mr. Chapman: Yes, sir.

Mr. Sheean: And what would you say the amount of coal consumed there is ordinarily on these suburban runs, in a day's run?

Mr. Chapman: Well, at this time of the year, they will burn all the way from seven to ten tons.

Mr. Sheean: And all of these suburban engines, or a good many of the suburban engines are taken care of at the 26th street roundhouse, are they?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the starting of the run is from Randolph street?

Mr. Chapman: Yes, sir.

Mr. Sheean: The train crews report at Randolph Street?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the engineers and firemen bring the engines from 26th Street to Randolph Street?

Mr. Chapman: Yes, sir.

Mr. Sheean: On the starting of those runs?

Mr. Chapman: Yes, sir.

Mr. Sheean: During all the time that you have been on the Illinois Central, when this compensation on the trip basis has

been the governing basis, the bringing of the engines from the roundhouse down to Randolph street, has been included in and made part of this agreed way of settling on the trip basis, has it?

Mr. Chapman: Yes, sir; we have always brought the engines from there.

Mr. Sheean: And have taken, as the fairest way of adjusting this whole situation, paying on a trip basis, and combining the trips in such a way as would best suit the men?

Mr. Chapman: Yes, sir.

Mr. Sheean: I think that is all.

RE-DIRECT EXAMINATION.

Mr. Phillips: Are we to understand that the men there are entirely satisfied with this arrangement of runs, and the conditions under which they are working?

Mr. Chapman: No, sir.

Mr. Phillips: Don't you think that the fact that this question is before this Board of Arbitration, is evidence that the men are dissatisfied with their condition?

Mr. Chapman: Yes, sir.

Mr. Phillips: I understood you to say that the arrangement of these combinations was solely in the hands of the men. As a matter of fact, are not the runs all carded by the company without consulting the men?

Mr. Chapman: The engineers put up the runs as they are, but they have got to do it under certain instructions.

Mr. Phillips: No, pardon me; perhaps you did not understand my question. The Illinois Central Railroad Company arranges its service and cards certain runs. Now, that is all done by the company without consulting the men, is it not?

Mr. Chapman: Yes, sir.

Mr. Phillips: And then the men take that as laid down by the company and then try to arrange it so they can make a living and get a little sleep on the installment plan; is that true?

Mr. Chapman: Yes, sir.

Mr. Phillips: You were asked if any arrangement could be made whereby this condition could be changed and would be more satisfactory to the men, or work out in a fairer manner. Do you not think if it is arranged on a basis of one hundred

miles or less, it would be more satisfactory and would cover the service, a day for one hundred miles or less?

Mr. Chapman: Yes.

Mr. Phillips: Now, with regard to your earnings, I understood you read several months, about ten months in the past year.

Mr. Chapman: Yes, sir.

Mr. Phillips: If we have got your figures correctly, your average for those ten months would be about $75 a month and not $95 as your average as stated; is that correct?

Mr. Chapman: That would be about it.

Mr. Phillips: But if you had worked all the time you laid off, every time you had an opportunity to work, both as engineer and fireman, including the extra running which you did, you could have made, or might have made about $95 a month?

Mr. Chapman: Yes, sir:

Mr. Phillips: But as a matter of fact, with the time you found it necessary to lay off, or the Sundays which your train was not scheduled to run, you earned and drew about $75 a month, in that vicinity?

Mr. Chapman: Yes, sir.

Mr. Phillips: That is all.

Mr. Sheean: Mr. Chapman, is it your understanding that the engineers and firemen are willing that this suburban service shall be arranged in such a manner that during the first ten combinations during the busy hours of the morning, there shall be an average of pay of the men higher at that time than the pay in the intervening time? I understand that it can be so arranged into three classes, so that, say, in the first ten combinations the engineers get six or seven dollars a day, the second combination running down to $5.50, and the lower combination, four or five dollars, depending on this mileage. Is it your understanding that the men would be satisfied in that way to put in during these busier hours the opportunity of making greater miles for the men who happened to get it at that time?

Mr. Chapman: Why, no, they have not got any jobs like that, that run up to that amount?

Mr. Sheean: Well, they do run early in the morning, don't they, with a great deal more steadiness and regularity?

Mr. Chapman: Yes, sir.

Mr. Sheean: A great many more trains during the rush hours?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the men going on duty can run a great many more miles and make them more rapidly during that particular period?

Mr. Chapman: Yes, sir, they can.

Mr. Sheean: Is it your thought that the men on that line of railroad would be willing that they should divide up the runs with the men during part of the time, so that they would receive a different compensation than those in the other part of the day?

Mr. Chapman: No, sir.

Mr. Sheean: Well, is it not a fact that for over thirty years the arrangement of these combinations has been by consultation between the men and the company, in such a way that the combinations will work out what the men think is a fairly equal spread in the service?

Mr. Chapman: Yes, sir, that is the way they arrange to do, as near as they can.

Mr. Sheean: And is it not a fact that in the other way, of attempting to make the adjustment during the busy hours, it would mean five men running at that particular time, would run faster into miles than those at the other and less busy hours of the day? That is, the trains are five minutes apart out here in the rush hours, are they not?

Mr. Chapman: Yes, sir.

Mr. Sheean: Five minutes apart on the express and ten minutes apart on the local tracks?

Mr. Chapman: Yes, sir.

Mr. Sheean: Then during the middle of the day a good deal of the express service is suspended, and the local service runs out into twenty minutes apart; that is a fact, is it not?

Mr. Chapman: Yes, sir.

Mr. Sheean: So that just at certain periods of the day, morning and evening, there are a greater number of trains run during that time?

Mr. Chapman: Yes, sir.

Mr. Sheean: And the miles are reeled off faster, more of them?

Mr. Chapman: I don't know as to the miles, they run faster; of course, that is when we do our work, morning and night.

Mr. Sheean: The general work of the men has been to arrange this combination of trips in such a way as to equalize those among the service and the compensation that the men get?

Mr. Chapman: Yes, sir, they do that as near as it can be done.

Mr. Sheean: And for these thirty years, that is the way in which it has been handled, has it not?

Mr. Chapman: Yes, sir.

Mr. Sheean: That is all.

Mr. Phillips: Just another question. A few moments ago I asked you if a combination could not be arranged where one hundred miles or less for a day's work would be satisfactory to the men, and I understood you to say yes, you believed it would.

Mr. Chapman: I believe it would.

Mr. Phillips: If this was all arranged at a proper rate per day for engineers and firemen, on a basis of one hundred miles or less, five hours or less, for this service, do you not think that would be more satisfactory to the engineers and firemen working on the Illinois Central Railroad?

Mr. Chapman: I think it would.

Mr. Phillips: That is all.

Mr. Sheean: If you could make it fifty miles or less, one hour or less, it would be still more satisfactory, would it not?

Mr. Phillips: And if you could make it five feet and five seconds, that would still be better, would it not?

Mr. Chapman: I believe it would.

(Witness excused.)

The Chairman: I should like very much to hear from the representatives of the parties as to whether, during the future hearing of this case, it would not be advisable to hold sessions on Saturdays.

Mr. Stone: As we are the plaintiffs, I suppose I should answer first?

The Chairman: Yes.

Mr. Stone: Speaking for the Engineers' and Firemen's

organizations, I would say, Mr. Chairman, while I have no desire to prolong this session, I would much prefer five days a week; because I think we can do better work; I think we can get our subjects in better shape, and I believe it would be more satisfactory to us all the way through, with five days a week.

Now, understand, I do not want to be obstinate about the thing, but I would much prefer it. I believe we can pour enough into the Board in five days so that they can use the other two days in thinking about it.

Mr. Sheean: I am rather inclined to concur with the view of Mr. Stone, that really Saturdays and Sundays can be utilized by us in shortening and eliminating and getting our proof in more concrete form than if we work to the time of exhaustion, and beginning the next week, may not have our matters as well arranged. I do not say that with the idea that we will not continue to work Saturday or Sunday, but I candidly think that we can more concretely assemble the matters we want to put in by having that break in the hearings of the Board. But, like Mr. Stone, I am willing to defer to whatever the wishes and desires of the Board may be.

The Chairman: From my experience at the Bar, as well as on the Bench, I heartily concur in the view you entertain. Of course, I am here and would be delighted to meet with you every Saturday, if convenient. I should also like to hear from the members of the Board, as to their individual views in the matter.

Mr. Nagel: I think we have had evidence and we have had it demonstrated to us that more work is done in five days than in six, by the manner in which the case has been presented. We have seen evidence of a state of preparedness that could not have been had if we had worked six days.

Mr. Burgess: I think the progress which the case has made, Mr. Chairman, justifies the opinion that the hours the Board decided upon, are correct.

Mr. Shea: Mr. Chairman, being a thorough advocate in minimizing the hours of labor, I fully concur in a five-day week.

Mr. Park: I concur with the views which have already been expressed.

Mr. Byram: I concur heartily in the five days a week and five hours a day. I think it is sufficient and for the best interests of both parties.

The Chairman: You think five hours is sufficiently long for any one session?

Mr. Sheean: I would like to hear Mr. Stone answer that first, about five hours.

Mr. Stone: What was the question, please?

The Chairman: Do you think five hours is a sufficient length of time to consume at any one session?

Mr. Stone: Oh, yes, and then some. If anything, it is too long.

The Chairman: Of course, I can understand how the Government, owing to the limited appropriation that it has, is anxious to conclude this matter at the earliest possible moment. But, under all the circumstances, as Chairman, I shall yield as gracefully as I can to the request of you gentlemen.

Mr. Stone: Mr. Chairman, I think, in agreeing to shorter hours, it is not our purpose to prolong the hearing but to expedite the whole matter, and save the Government money. I think they will be money ahead at the end of the hearing.

The Chairman: I quite agree with you.

Mr. Stone: Of course, the Government is poor, and I am worrying a whole lot about the Government, but these poor railroads I am worrying about also.

The Chairman: Well, everyone is hard up these days.

Mr. Nagel: And you can help out the Government without incurring suspicion.

The Chairman: If there is nothing further, we will adjourn until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M., January 4, 1915, an adjournment was taken to 10 o'clock A. M., January 5, 1915.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 5, 1915.

Met pursuant to adjournment at 10:00 o'clock A. M.
Present: Arbitrators and parties as before.

The Chairman: Mr. Park desires to make a correction.

Mr. Park: Volume 19, page 1967, line 23, sixth word. It reads: "Mr. Phillips: Do you find our wages as switch engine fireman permit you to support your family in luxury?" It should be "your."

Volume 19, page 1893, line 5. "Mr. Westphal: A man does not have to be on constant lookout for signals,"—I think that should be "A man does have to be," etc. I think that was the intention of the witness.

Mr. Phillips: I was unavoidably late a moment or two and I did not hear the corrections suggested by Mr. Park. I will ask that the reporter read them to me.

(The correction on page 1893 was read by the reporter.)

Mr. Phillips: I don't know that that is vital. Just reading it hurriedly, I would say that it appears from this, without reading the preceding questions, that he was attempting to define his reason why he preferred the yard engine.

Mr. Park: I will leave that to you. If you think it should not be corrected, very well.

Mr. Phillips: What was the other correction?

(The correction on page 1967 was read by the reporter.)

Mr. Phillips: I think that should be "your." In addition, I would like to have noted two or three corrections. I might say, Mr. Chairman and gentlemen of the Board, I don't know whether it is due to the effects of the holiday vacation, or whether we were all a little absent minded yesterday. Some have criticised me for being on the high speed all day, and it was pretty hard for the reporters to get some of my disconnected statements, but in any event, I do notice several little discrepancies in the record of last night, two or three in addition to those noted by Mr. Park.

On page 1957, line seventh, it should read "Leavenworth," instead of "Laggan." The sentence should read: "I suppose 130 or 140 degrees would be the same in St. Louis as out in that tunnel on the Great Northern, west of Leavenworth, would it not?"

On page 1979, third line from the bottom, it should read: "214,000" instead of "44,000."

In addition, Mr. Chairman, the witness Westphal, who testified first, yesterday, stated to me last night that in his testimony to the effect that switchmen received night rates when going to work outside of the hours 6:30 A. M. to 7:30 A. M., that he learned, upon inquiry, that he was mistaken, that the night rates apply when they go to work outside of the hours 6:30 A. M. to 8 A. M., and he desires that his testimony be corrected to that extent. He had testified, so he told me, as to what some switchman, with whom he works, had told him, without looking up the record himself; and upon investigation he found that that was an error, and he wishes to have that correction made in his testimony. I might say, Mr. Chairman, that I think reference to those hours appears on several pages, at least three pages, and wherever it appears in his testimony, if it is proper, we wish that that correction be made, as requested by Mr. Westphal.

Mr. Sheean: We have no objection to that at all.

Mr. Phillips: Again reviewing my record, I find I had one more page marked. At page 1966, line 6, reading: "And the fireman gets 12 cents an hour more," it should read "and the night man gets 12 cents an hour more." Now, that is a question propounded by myself, and I do not wish to put the blame for that error, or perhaps some of the other errors, on the stenog-

raphers. I perhaps misspoke myself, and what I had intended to say, it would make sense to say, "And the night man gets 12 cents an hour more" instead of "and the fireman gets 12 cents an hour more."

The Chairman: I note one correction here of the last proceeding that we had before we adjourned. Page 1883, line 14, the word "hearing" should be stricken out, and the word "determination" inserted.

W. JETT LAUCK was called as a witness and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Stone: So many questions have been asked me in regard to Mr. Lauck's personal identification, and so forth, and how he pronounces his name, and everything else, that, if I may, I will make a short explanation. The English pronunciation is just the same as we would spell "lock." Mr. Lauck spells his name L-a-u-c-k. He is of Huguenot-French extraction. Mr. Lauck looks like a boy, but he carries his years and his honors very lightly. I am sure that some of the rest of us wish we might know the secret of how he does it.

In order that there may be no question in the record as to the man's qualifications for the work, I would like to state that he is a graduate of the Washington and Lee University of Lexington, Virginia. He was a Fellow in the Department of Political Economy of the University of Chicago from 1902 to 1905. He was Professor of Economy of the Washington and Lee University from 1905 until 1907. He was in charge of the Industrial Investigation of the United States Immigration Commission from 1907 until 1910. He was Chief Examiner of the United States Tariff Board in 1910 and 1911. He was in charge of the Banking Reform Movement of the Southern States in 1911 and 1912. He was statistician in the Firemen's Eastern Wage Arbitration in 1912 and 1913. He was managing expert of the United States Commission on Industrial Relations in 1913 and 1914, and is now the statistician in charge for the Enginemen and Firemen's Western Wage Movement for 1913 and 1914.

Mr. Lauck, for what period has the research and investigation for this case here been going on?

Mr. Lauck: It has been going on since May 21, 1913, immediately following the close of the Firemen's Eastern Arbitration.

Mr. Stone: About how many and what have been the qualifications of the people you had employed under you, and over which you have had charge as a supervising expert?

Mr. Lauck: There have been on the average about twenty-five persons, I should say, engaged in the work. The numbers varied from time to time, owing to the different stages of the negotiations, sometimes thinking that the Arbitration would not be held, and other times it seemed it would be held very soon, but on an average about twenty-five persons for the period. Some of the people who have engaged in the work have been statistical clerks, who have been employed in transcribing records from the Interstate Commerce Commission. That is, making transcriptions of the reports — the annual sworn statements of the railroads to the Interstate Commerce Commission. Others were experts in specific lines, principally men who had made a study of corporation finance, and who were interested in financial work. The people were all well qualified. The statistical clerks were clerks who had, as a rule, had experience in the government service and in similar lines of work, and the men were men who had had special qualifications along the lines of their work.

Mr. Stone: Then you feel that the exhibits that we have prepared are accurate?

Mr. Lauck: I feel that they are as nearly accurate as we can make statistical exhibits. Of course, human frailty being what it is, there is always a chance of error, but every precaution has been taken to make them as accurately as possible. All the data that we have secured, of course, has been verified from the original sources, and all computations have been verified.

Mr. Stone: I would like to say, Mr. Chairman, that in presenting these exhibits it is not our desire to present anything but what are absolute facts, and while I have no doubt but what the other side will scrutinize them very closely, I want to invite the closest scrutiny from the other side, and the harder they go against them the better satisfied we will be with our exhibits, because we feel sure they are right. We have checked them from every angle.

When I was a boy in a country school out west, one of the first lessons I had in my copy book, when I was learning to write,

was the statement: "figures do not lie." I remember that distinctly, because it was my first copy lesson. Through years of bitter experience, I have learned that figures do lie. I have learned that sometimes liars figure. I have also learned that there are statistics, and then there are averages, and then there are averages of averages, which mean nothing. But in these figures that we are putting up here, there is no attempt to juggle figures, and if there is anything wrong with the figures we are just as anxious to know it as the Board or the other side can possibly be, so we hope the other side will devote all of their energy to these figures, because we want them to.

The first exhibit we want to put in is an exhibit of basic and derivative tables, Exhibit 20.

(The document so offered and identified was received in evidence and thereupon marked "Employes' Exhibit No. 20, January 5, 1915.")

Mr. Stone: I might add, Mr. Chairman, that these are simply basic and derivative tables. They are the foundation upon which we build our exhibits. All the exhibits we have are founded on these original tables.

Take, for example, ton mileage, in the index of Part I, Table 6; the ton miles are found there just as the railroads report them to the Interstate Commerce Commission.

In the course of our work, we found it necessary to prepare derivative tables showing the increase in ton mileage; and by referring to the index of Part 2, Basic Table No. 88, you will find a basic derivative table, and you will find that this same plan is followed throughout the entire book.

In our exhibits, in almost every case, we have arranged them in three periods. This was necessary because we did not know what angle this case that we had under way then, might take, and so as to be prepared for any emergency, we arranged it in three periods, 1890, and 1913, 1900 and 1913, and 1909 and 1913; and we also have an exhibit of 1913 and 1914, but that is not complete, for the reason that the railroads make their annual reports late in the year, in October and November, and all those reports are not in at this date, so it was impossible to compile them and make a complete table from them; but so far as we could, we did.

In going into these tables, it has been touched upon by the

other side several times, and I want to make it so clear that there cannot be any possible chance for misunderstanding, that so far as the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen are concerned, we never have conceded, nor do we concede now, that the settlement of 1909-10 was full, complete and satisfactory. It was simply the best we could get at that time under the existing conditions, and without resorting to the drastic measures of a strike, and in the interests of peace and harmony, it was thought best at that time to accept it; but it was satisfactory neither to the committees who made the settlement, nor to the rank and file of the men after the settlement was applied. In addition to that, by sharp practices on the part of some of the companies, many of the benefits of this settlement have been kept from the men up to this time. So that the question before this Board today is not a question of an arbitration of 1914 over 1910, but it is a settlement of questions that have been in dispute since 1890, and the settlement of which has never been accomplished satisfactorily to the men.

In this Exhibit No. 20, Mr. Lauck, how were these statistics prepared?

Mr. Lauck: Referring to the Table of Contents on page iii, we find that Part I is entitled "Basic Statistical Tables." These tables are really transcriptions from the records or annual reports of the railroads to the Interstate Commerce Commission. They were secured by sending clerks to the Interstate Commerce Commission, where such reports are available, and making transcriptions, and another set of clerks verifying the transcriptions which were made.

Referring again to Part II, page vi in the contents, you will find the second section of these tables is entitled "Basic Derivative Tables." Probably just the term "derivative tables" would have been more correct; at any rate, these tables were prepared by computation in our office at Washington, and are based on Part I. Having gotten the original sources of information, in preparing or buildilng up a constructive argument, we found it necessary to make certain derivative tables, which are included in Part II, and consist of computations or combinations from the figures in Part I. These were made by clerks using computing machines and adding machines in our own office,

and are, with some exceptions, our own tables. Of course, there are a few tables in Part II which are as actually reported by the railroads, such as the freight train loading, and the pounds of coal consumed per locomotive mile, and the revenue train mile earnings; but the great majority of them are derivative tables computed in our own offices from the original sources.

Mr. Stone: What is your object in submitting the tables in this form:

Mr. Lauck: The object in submitting the tables in this form was to prevent the constructive argument which we wished to build on these tables from being confused by injecting into it a bewildering mass of statistics, I might say. That is, my object was to put into one form, for ready reference, the basic and fundamental information and using that to construct a series of exhibits referring to that, which would contain our direct and constructive argument as to the reasons why it seems that the locomotive engineers and firemen should have increased compensation, and thus obviate having the argument confused by a mass of statistics which otherwise it would have been necessary to put into each exhibit.

These statistics are so arranged that, as Mr. Stone just explained, in each exhibit reference may be made to the fundamental material or the original data as contained in this book, and any verification or any comparison may be made. Of course, if any errors exist in this, why, that vitiates the derivative exhibits, but there will be no trouble I think in making a comparison between the exhibits and the basic tables.

The primary object was to avoid introducing with each exhibit a large mass of statistical data, and to keep the argument as clear as possible.

Mr. Stone: Then we understand that the basic foundation upon which you build all your exhibits is made from the reports of the railroads themselves, to the Interstate Commerce Commission?

Mr. Lauck: Exactly. All the statistical exhibits are based upon the actual figures reported by the railroads in their annual certified or sworn statements, sworn to by the comptroller, I believe, of the road and by one of the executives of the road, and filed with the Interstate Commerce Commission at Washington.

Mr. Stone: You have no way, of course, of knowing the

correctness of these figures — you take it for granted that they are right?

Mr. Lauck: We assume that those figures are correct.

Mr. Stone: Because they are the sworn statements of the railroads?

Mr. Lauck: Exactly.

Mr. Stone: So that if an error exists in the fundamental figures, it is the error of the railroads and not of our making?

Mr. Lauck: Yes, sir.

Mr. Stone: This really is introduced, first, so that you can have a foundation to build on for your other exhibits?

Mr. Lauck: It is a foundation, and the succeeding exhibits are the superstructure which we build upon this foundation, with references to them from the basic or fundamental information.

Mr. Stone: That is all on this exhibit, unless the other side should desire to question. It is simply introduced first to get all of our figures together in one volume, instead of stringing them along through several exhibits.

The Chairman: Do you desire to cross examine the witness?

Mr. Sheean: I don't think so, at this time. I would suggest, if it is entirely agreeable to you, if, as we go along, there should be something in an exhibit we do not understand, that we may ask a question at that time, without going into the whole cross examination.

Mr. Stone: Certainly.

The Chairman: I think that would be a very good course.

Mr. Stone: We will introduce Exhibit 21. If it would be possible, Mr. Chairman, we should like to put in Exhibits 21, 22 and 23, because they are the three periods; Exhibit 21 covering the period 1890-1913; 22, 1900-1913; 23, 1909-1913, and they are all three based on these basic tables, simply covering the three periods. I would desire to introduce them in that form, if there is no objection. I thought, perhaps, it might save time by doing so.

Mr. Sheean: We have no objection.

Mr. Stone: They all treat of the same thing, except for three distinct periods.

The Chairman: That may be done.

(The documents, so offered and identified, were received in

evidence and thereupon marked, "Employes' Exhibits Nos. 21, 22 and 23, January 5, 1915," respectively.)

Mr. Stone: In presenting these three exhibits, Mr. Chairman, we at least hope to prove, first, that during the past twenty-four years the western railroads have made remarkable gains in productive efficiency, by the installation of locomotives of greater tractive power and cars of greater capacity, by the elimination of curves and reduction of grades and the strengthening of roadbed and structures. All these developments have been followed by a threefold effect upon engineers and firemen; first, it has increased their labors and responsibilities; second, their productive efficiency has been greatly increased; third, their earning capacity, even at the increased rates of payment, has declined.

We hope to prove that it is the tendency which now predominates in the operation of the western roads to add still further to the existing trainloads and make still further increases in the labors and responsibilities of the engineers and firemen.

We expect to prove that the revenue gains arising from the advances made in the productive efficiency of the western railroads have been sufficiently great to pay all increases in operating cost as well as reasonable returns on additional capital investment, and, in addition, to leave an ample surplus to remunerate engineers and firemen for their increased work and productive efficiency.

We expect to show from the annual reports of the railroads themselves to the Interstate Commerce Commission that increased operating costs have not been due to additional outlay for labor, and, as a matter of fact, that labor costs of operation have actually declined.

(Addressing the witness): What is this Exhibit No. 21, Mr. Lauck?

Mr. Lauck: Exhibit 21 is entitled "Increased Work and Productive Efficiency of Locomotive Engineers and Firemen," during the period 1890-1913.

Mr. Stone: I wish you would explain to the Board, if you will, the manner of preparing and presentation of this exhibit?

Mr. Lauck: They have been prepared in the manner that I have in general indicated, in speaking of the basic tables. The original information has been secured from the reports of the railroads to the Interstate Commerce Commission, and on basis

of that information, certain derivative tables have been formulated for the purpose of setting forth an argument as to increased operating efficiency of the railroads.

These derivative tables consist of the tables which are included in this exhibit, and show the increase and the number of locomotives in service, the increase in the ton mileage, the increase in the total traffic, the increase in the freight train miles, the increase in the train load, and coal consumption, and in the coal consumed per locomotive mile.

And also tables have been prepared showing the output, so far as we are able to get at that from the reports of the railroads to the Interstate Commerce Commission. In other words, we have considered the transportation industry as an industry which is producing ton miles primarily; that is, it is producing certain units of transportation, just like a cotton mill produces print cloth, or ginghams, or denims, or a steel mill producing billets or rails. We have, in preparing these exhibits, looked upon the transportation industry as an industry which is engaged in producing certain units of output which are commonly designated as ton miles and passenger miles. That is, a ton carried one mile and a passenger carried one mile. Looking upon the transportation industry in that way, I have then endeavored to find out to what extent, for each unit of labor and capital invested, transportation units or ton miles or passenger miles have been produced, and also in this connection to make a comparison in 1913, as compared with 1890, of the traffic units or the ton mileage and passenger mileage produced, for each thousand dollars invested in locomotive engineers and firemen, by the railroads. In other words, the idea has been to apply to the railroads a cost finding system, and to endeavor to see the results on basis of their outlay.

Of course, there are a great many statements constantly being made about the immense outlay for labor of the railroads and in other industries too, and it seemed to me that these statements had no significance unless you related them to something; unless you related them to the cost or to the unit output which the transportation industry was producing, and an effort has been made to ascertain, in terms of what the railroad produces, what the cost to the railroad has been; and also, in terms of outlay for locomotive engineers and firemen, and what has been

produced for each thousand dollars invested in capital and labor.

It would have been more satisfactory if we could have taken the individual fireman and the individual engineer and made an effort to see what each one of those produced, in terms of ton miles or traffic units, but we found that the reports as to the number of engineers and firemen were so unsatisfactory, simply being the number reported by the railroads on June 30th of each year, that I abandoned that idea and went into the further idea of attempting to show, for the money outlay, in terms of dollars and cents, what locomotive engineers and firemen were producing. Just as in the case of any other industry, say, in the glass industry; a man conducting a glass industry would endeavor to find out what, in terms of glass bottles or plate glass or window glass, was produced for each thousand dollars that he invested in his labor cost. It would probably be well for me to explain some of the terms, before we go further into the exhibit. I might ask the Board to refer to page 2 on this exhibit.

The Chairman: Exhibit 21?

Mr. Lauck: Yes, sir. You will find a diagram there with the principal designations which are used. The number of locomotives in service and the number of ton miles are obvious and require no explanation. The number of traffic units is an arbitrary designation which it was found necessary to use. That consists of adding together, by simple addition, the ton miles and passenger miles, as reported by the railroads to the Interstate Commerce Commission. In other words, "traffic units" here mean simply ton miles plus passenger miles, or total number of tons carried one mile plus total number of passengers carried one mile.

You will probably recall that the railroads, in making their reports to the Interstate Commerce Commission, make no division between operating costs. That is, they report their total operating expenses, and make no separation between operating costs for freight traffic and operating costs for passenger traffic, and there is no common unit of transportation. That is, ton mileage refers to freight traffic, and passenger miles refer to passenger traffic. Therefore, the problem presents itself of a lack of a common unit which you can use to ascertain cost. This unit is simply an arbitrary unit, which I secured in the way that I have mentioned, which simply exhibits a tendency. It is not

supposed or not assumed to be accurate. That is, so far as cost finding, but is merely a common unit, which under the necessities of the case I had to evolve in some way, and I made this arbitrary classification.

Mr. Byram: Do I understand that you combined freight and passenger traffic to get these united? For instance, a passenger mile and a ton mile are counted each as one unit?

Mr. Lauck: One unit, yes. Of course, as I understand, there have been different kinds of traffic units evolved. That is, sometimes we find three passenger miles counted as one ton mile on the basis of—I simply made a simple addition. I lay no great stress on this unit, and, as I have said, it is simply an indication of a tendency. It is not something we can say is accurate.

Mr. Byram: A passenger hauled one mile in a passenger train would then count in this calculation the same as a ton of freight hauled one mile?

Mr. Lauck: Yes.

Mr. Stone: That is, in traffic units?

Mr. Lauck: Yes.

Mr. Stone: But you show in another line the ton mile per freight train mile, separate and distinct?

Mr. Lauck: Yes. I was going to get down to that, Mr. Stone.

Mr. Stone: I might add that this (indicating the chart exhibited in the courtroom) is simply a larger reproduction of the chart you have on page 2. It is simply a graphic chart for expert purposes. That is all.

Mr. Sheean: Might I, Mr. Stone, before you go on there—Mr. Lauck, how did you get at the number of freight engineers and the number of freight firemen?

Mr. Lauck: I was just going to explain that, Mr. Sheean. Perhaps I had better just go on down the line. I will take them all up in order.

Mr. Sheean: I thought he was turning to another page; that was the reason I spoke.

Mr. Lauck: I was just speaking of traffic units. Freight train miles, of course, requires no explanation. Revenue train miles are, of course, train miles that are simply used in producing revenue, and not hauling company freight or unproductive service.

Ton miles per freight train mile is the technical term for an average freight train load. That is a figure that is reported directly by the railroads themselves. That is the revenue freight tonnage, however. That is, the railroads report to the Interstate Commerce Commission their train load of revenue freight. They do not include in their train load the additional traffic which is in the train and consists of company material, such as crossties, ballast, etc. This is the revenue freight train load.

Coal consumed is the amount of coal reported as consumed during the year, and in terms of tons.

Fuel consumed per locomotive mile is reported in terms of pounds. That is a figure that is actually reported by the railroads themselves, and is not a table which has been compiled by us.

The reason why it is admitted in this chart is that the railroads reporting an average number of pounds of fuel consumed per locomotive mile—I had no way of getting it for the total, because I could not take the average of averages, and in the showing for the individual roads you will find that term used, but here I have omitted it, because the information was not available.

I might add further, you will note the distinction there between coal and fuel. This figure as to pounds of fuel consumed per locomotive mile includes not only coal but oil, and I think gasoline and wood; any other kind of fuel used, and the different roads have different methods of transmuting that into terms of fuel. That is, some roads report 168 gallons to a ton of oil, and so on. I do not remember the different classifications, but this includes coal, oil, gasoline, wood, and anything else that might be used to produce fire on a locomotive.

Mr. Stone: For example, if you had a gasoline motor on that road, that would be shown in this coal consumed?

Mr. Lauck: Yes. That is my understanding. It would be expressed in terms of fuel as related to a ton of coal by some arbitrary classification.

Now, coming to the question raised by Mr. Sheean, you will note that I have tons miles per thousand comparison to freight engineers and freight firemen. Ton miles, of course, is given above. The railroads do not report to the Interstate Commerce Commission how many freight engineers they have, or

how many passenger engineers they have. They report total number of engineers and total number of firemen. There is no division between them, just as there is no division between operating expenses. So it was necessary, in order to arrive at this figure, or to arrive at some way of computing what the productivity of the freight engineer and freight fireman was, to make a distinction between freight engineers,—as to the number of freight engineers and the number of freight firemen. To do that, I used the revenue train mileage basis; that is, I distributed the total number of engineers as reported to the Interstate Commerce Commission, on the basis of the ratio of revenue freight train miles, to total revenue train miles, adding to freight three-quarters of mixed and three-quarters of special miles as reported to the Interstate Commerce Commission; or, in other words, I used the basis of distribution which was formerly required by the Interstate Commerce Commission of the railroads.

Some years back, I do not remember the exact year, I think it was abandoned along in the early '90s; before that time, the railroads were required to separate their operating expenses between freight and passenger traffic, and the Interstate Commerce Commission prescribed as a method, the revenue train mile distribution; that is, the distribution according to the proportion which revenue freight train miles bear to total revenue train miles, giving additionally to freight traffic three-fourths of switching and special miles, and to passenger traffic one-fourth of switching and special miles. And, I might add, that this distribution is an arbitary distribution; it is only approximately correct; it is not something that we can say is absolutely accurate or absolutely correct, but it exhibits clearly the tendency, it seems to me, and is based upon the well recognized method of distribution which I have spoken about, and I think is a method which is used by a great many western railroads at the present time in distributing their operating expenses.

Mr. Park: Did you take into consideration work train engineers and engineers employed in construction service?

Mr. Lauck: I took the total number of engineers as reported by the railroads to the Interstate Commerce Commission. If a railroad was engaged in additional construction and extensions, or new lines, my understanding is that they would not

report those engineers engaged in construction to the Interstate Commerce Commission.

Mr. Park: No, but there would be engineers and firemen engaged in work train service, in repairs and maintenance of track.

Mr. Lauck: Yes, sir. I think those are—

Mr. Park: That would not be in revenue service.

Mr. Lauck: They would be included in the total number of engineers reported, and the effect of that, of course, would be to increase the number of engineers, and it would be to our disadvantage; that is, by increasing the number of engineers you would decrease the output per engineer.

Mr. Byram: Did I not understand you to say you abandoned the idea of using the number of engineers reported to the Interstate Commerce Commission?

Mr. Lauck: Yes, sir.

Mr. Byram: Did you use them afterwards in this computation?

Mr. Lauck: No, we did not use them at all.

Mr. Byram: Then you are not speaking of the engineers reported, but you are speaking of the number of engineers reported as in this service?

Mr. Lauck: Yes, I accept that correction. I was thinking of what your colleague said, and I momentarily passed over that, so I will make this correction, that it would not inure to our benefit, because we do not use it at all, and I make the distribution as to the total amount paid engineers and firemen, and in that would be included these men, of course, as I understand the method of reporting to the Interstate Commerce Commission. Is that clear, Mr. Sheean?

Mr. Sheean: I am not quite sure, Mr. Lauck, but if I follow you, you have assumed, by taking revenue, that it takes one freight engineer to earn one hundred dollars for the company in freight service, where it takes one engineer to earn one hundred dollars in passenger service; that is, you have simply taken the revenue derived and distributed the engineers.

Mr. Lauck: No, I have taken the mileage made by the men on the revenue producing trains.

Mr. Sheean: The mileage?

Mr. Lauck: Yes.

Mr. Sheean: Then, in that case, if you have taken the mileage produced, then your distribution as between freight and passenger is that it takes the same number of engineers in passenger service to make revenue miles that it would take to make the same revenue miles in freight service.

Mr. Lauck: I cannot just see that. I do not see where the number of engineers applies at all.

Mr. Sheean: No, but—

Mr. Lauck: But the outlay for engineers.

Mr. Sheean: The outlay for engineers?

Mr. Lauck: Yes.

Mr. Sheean: You have taken the gross payment to engineers as a class?

Mr. Lauck: Yes.

Mr. Sheean: That is the only way in which it is reported?

Mr. Lauck: Yes.

Mr. Sheean: Now, in distributing a part of that gross outlay to freight service, you have said that the revenue service, per unit of compensation, is the same in one service as in the other, or have assumed that in making this distribution?

Mr. Lauck: No, don't you think that I have allowed for that, in giving a greater ratio to the freight locomotive firemen and engineers? That is, taking the ratio between passenger and freight service, you would have—of course it would depend upon the traffic of the road, as to whether there was a predominance of freight or passenger traffic. If you have a road like the New Haven Road, which has more passenger than freight miles, and another road may be entirely freight.

Mr. Sheean: I just want to understand it as we go along, Mr. Lauck.

Mr. Lauck: Yes.

Mr. Sheean: Out of a total revenue of one hundred dollars—we will get down to amounts that we can follow—

Mr. Lauck: Well, I am not speaking of revenue now, you know. I did not mean to interrupt you, however.

Mr. Sheean: The distribution is made on basis of ton miles and train miles.

Mr. Lauck: Yes.

Mr. Sheean: All right. Then we have one hundred miles freight and one hundred miles passenger?

Mr. Lauck: Yes.

Mr. Sheean: A total of one hundred dollars paid engineers and firemen?

Mr. Lauck: Yes.

Mr. Sheean: You distribute that fifty—fifty, do you?

Mr. Lauck: Yes, sir; making an allowance for mixed train miles and so forth.

Mr. Sheean: That is, it would take the same engineer, on that method of distribution, the same in pay roll, to produce one hundred miles passenger that it would to produce one hundred miles freight?

Mr. Lauck: Yes, I think that is correct.

Mr. Sheean: I just wanted to understand it as we went along.

Mr. Lauck: Yes.

Mr. Byram: If the freight engineer received for his pay 25 per cent more for making a mile than the passenger man, that would distort the figures somewhat, would it not? It would not be accurate as to the number of freight miles performed?

Mr. Lauck: I think it would not have that effect, because it takes a freight engineer longer to make a mile than it does a passenger engineer, does it not, as a rule? Therefore, for a given amount of compensation a freight locomotive engineer or a freight fireman would make less miles, as a rule.

Mr. Byram: Well, they get paid by the mile; they are both paid by the mile.

Mr. Lauck: But considering the time required to make a mile, as I understand—

Mr. Byram: I did not understand that the element of time entered into this at all.

Mr. Lauck: It would enter into the outlay of the railroad for the engineers and firemen, would it not?

Mr. Byram: This is a question of money. If you use the money paid for firemen and engineers as a part of your calculation, your division between freight and passenger would be affected by the fact that the freight man received more, if he does, a higher rate paid per day or per hundred-miles, or per any other thing, than the passenger man.

Mr. Lauck: Well, the point that I was going to bring out, though, in that connection, was that the freight service would

have comparatively fewer miles, and get a less proportion of the compensation, would it not?

Mr. Byram: No, I did not understand you that way. What I meant was, taking a given number of miles, or a given amount of money, if you are going to transform it into miles, if you are going to arrive at the division between freight and passenger by taking the money paid and the miles run, it would not be entirely accurate, if the freight man received more for running a mile than the passenger man, would it?

Mr. Lauck: Not unless his mileage would be affected, so that more would be thrown to his side of the ratio, and the method—

Mr. Byram: That you are not able to determine here?

Mr. Lauck: I am not able to determine that from this, no, sir. The method is that the railroads report to the Interstate Commerce Commission the cost, as you know, the outlay for firemen and the outlay for engineers. Then say that is one million dollars each, and then say the ratio of revenue freight train mileage is 70 per cent of the total revenue mileage; then I take 70 per cent of the total outlay for engineers and firemen, and say this is the outlay for freight traffic, and 30 per cent is the outlay for passenger traffic.

Mr. Byram: Yes, but it might be 90 per cent of the money paid to the freight man, if he gets a higher rate of pay than the passenger man.

Mr. Lauck: It seems to me that that would not follow, because, although the passenger man received a less rate of pay per mile, there would be more miles produced by the passenger traffic, and therefore a larger ratio would go to passenger service.

Mr. Byram: Yes, but you are dividing it on a train mile basis, and there are only so many miles to use; the freight trains run so many miles.

Mr. Lauck: Those miles were produced by the railroad and—

Mr. Byram: The freight trains represent so many miles, and the passenger trains represent so many miles, and the men are paid by the mile. If a passenger man receives a lower rate per mile than the freight man, it would naturally affect such a division as you have made there.

Mr. Stone: Mr. Chairman, I have no desire to interrupt

this discussion, but it is a new departure, to cross-examine a witness before he gets through with his direct testimony.

Mr. Lauck: It is perfectly agreeable to me, Mr. Stone.

Mr. Stone: If there is anything about these charts which is not understood, we would be glad to explain them. The computation that is made here, is made on the ton mile basis. The first computation he makes is the ton miles per one thousand dollars' compensation to freight engineers—

Mr. Sheean: Let us get that straightened out. I think you are in error about that.

Mr. Lauck: We were going back of that to see how we got the cost of freight engineers and firemen, and I was explaining that we had to get those by making an arbitrary distribution, in view of the fact that the railroads did not report freight engineers and firemen separately—

Mr. Stone: The fact remains that there are only two computations shown: "Ton miles per $1,000 compensation to freight engineers and firemen," and "Traffic units per $1,000 compensation to engineers and firemen." Traffic units, of course, are the combination of freight and passenger added together.

Mr. Byram: I merely wanted to find out what his basis was. It seemed to me very important, in order to understand the table, that it should be arrived at.

Mr. Lauck: It is very important, and it is something which is very difficult to reach any accuracy on, because of the methods of reporting. There has not been this division, and we have to make an arbitrary division.

Mr. Byram: I have no disposition to cross-question the witness, but I thought it was a proper question for me to ask, as he was presenting the table, and I wanted to get at the basis of it.

Mr. Lauck: I am very glad to have it brought out.

Mr. Nagel: One question. Is it not true that the freight engineer gets more because he makes fewer miles?

Mr. Lauck: That was the point that seemed to me was true.

Mr. Nagel: Do you think it is safe to assume that past endeavors to equalize the compensation for freight and passenger engineers have established a safe basis for your calculation?

Mr. Lauck: That is my idea, yes, sir; and also the further fact that a revenue train mile, of course, may include more

than one locomotive mile; that is, there may be two engines on the freight trains, and it may require more than the agreed amount of time to make the mileage; and there may be time charged against the mileage which would add to the prevailing rate. That is, if you are paying an engineer, say, five cents a mile, and it takes him over ten hours to make one hundred miles, it might cost ten cents per mile to the railroad for these revenue train miles, in terms of engineers. Is not that correct, Mr. Stone?

Mr. Sheean: On that, Mr. Lauck, of course, on taking your total pay roll, total expenditure to engineers and firemen, the total amount that you take, of course, includes the mileage, overtime and everything else that the railroads have paid out.

Mr. Lauck: Yes.

Mr. Sheean: That you take as a total figure?

Mr. Lauck: Yes.

Mr. Sheean: You distribute it upon a train mile basis?

Mr. Lauck: Exactly.

Mr. Sheean: If, in fact, more of the overtime accrues in one service than in the other, that is not considered in distributing it on the train mile basis?

Mr. Lauck: No, but—

Mr. Sheean: And you would distribute the same proportion of overtime in passenger service that you would to freight, in this?

Mr. Lauck: But, based upon the experience, as I have indicated, and based upon the accepted formula which was formerly in use, I think you will find that this method of distribution is used on a great many railroads now for distributing the items of expense that cannot be charged direct to either one or the other class of service; and, of course, being confronted with not having any means of charging anything direct, according to the reports to the Interstate Commerce Commission, where no division is made, the best that could be done was to use this formula, which seemed to be the generally accepted formula for such purpose. This indicates the tendency, with not hard and fast accuracy, but it seemed to me to be sufficient for our purposes. I do not mean to put forward the view, or hold that this is absolutely accurate. I think it exhibits a tendency which is accurate, but not anything which is hard and fast.

Mr. Stone: Before you get away from that ton mile computation, I should like to ask a question. I understand you arrive at this amount, ton miles per $1,000 paid to freight engineers, by taking the total number of ton miles?

Mr. Lauck: Yes.

Mr. Stone: And dividing the total amount paid to all engineers; is that correct?

Mr. Lauck: No, dividing it into the amount paid for freight engineers, dividing the total amount paid to all engineers by the proportion which revenue freight train miles bear to total revenue train miles.

Mr. Stone: That is the way you get it?

Mr. Lauck: Yes.

Mr. Stone: Then, where does all this switching service and overtime go?

Mr. Lauck: The switching service, three-fourths of it is thrown into freight and one-fourth into passenger; the same way with special train miles, which would include special trains, or different items of that kind.

Mr. Stone: Construction service is distributed where, if there is any on the road?

Mr. Lauck. I think that would come in under the special train miles, but I am not certain about that.

Mr. Stone: Some roads in the western territory do not have construction service; they have the freight trains do that work.

Mr. Lauck: I do not know about that.

Mr. Park: It would not be included in special trains; that is, special passenger trains—

Mr. Lauck: Is it such as circus trains?

Mr. Park: Circus trains, and special trains; but construction service is special construction trains, and all roads have that to a certain extent.

Mr. Lauck: I was under the impression that construction service, being a non-revenue service, would not be included in either of these classifications.

Mr. Park: In building a new railroad, or doing new work—

Mr. Lauck: These are simply revenue train miles and are not non-revenue service train miles.

Mr. Park: But there are trains employed in construction work, making repairs to track, and so on.

Mr. Lauck: I think the engineers' cost would be shown in the total cost, but not included in the mileage distribution.

Mr. Stone: That would be against us, would it not?

Mr. Lauck: Well, it is so small it could not make any difference, I do not think. It would work to our disadvantage, really.

Mr. Stone: I should like to ask Mr. Park a question, if I may be allowed. Mr. Park, do I understand you to make the claim that all roads have construction service, regular construction trains?

Mr. Park: I think all roads have work trains engaged from time to time in the distribution of rails and ties and ballast, and that work.

Mr. Stone: Is it not true that on many of these roads that is done by a chain gang freight crew, called out for that purpose for a day, or doing it en route in their trip?

Mr. Park: I think the schedule provides that if they are employed for more than two or three days, or perhaps five days, they are regularly assigned work trains. If only for one or two trips on the road, they are chain gang crews.

Mr. Stone: With regard to these contracts let to construction companies for ballasting track, how would that be charged?

Mr. Park: There is very little of that done. I have had no experience in contracting for ballast. It has always been done under my direction by the operating forces; but there is a distinction between maintenance of way and the regular work of maintaining your track, and new work. That is entirely separate from the railroad and is differently reported.

Mr. Lauck: The new work is supposed to be eliminated from all operating accounts, being a capital cost?

Mr. Park: Yes.

Mr. Lauck: Traffic units per $1,000 compensation; that is, taking the total compensation and dividing it by this arbitrary unit. Total traffic units, that is the addition of ton miles and passenger miles.

Mr. Stone: Then, Mr. Lauck, what do you get from this chart, or what does it show, or what is your deduction which you make from it? Is that what you cover on page 3?

Mr. Lauck: Referring to page 3, the text explanatory of

the chart, we show there that, considering all these twenty-four railroads which are named on the preceding page (I might add there that there is one railroad included which is not in the present proceeding, the Arizona & New Mexico Railway; the exhibit was prepared before we knew it would not be included); but taking these twenty-four roads, we find that during the period 1890 to 1913, or in 1913 as compared with 1890, there was an increase in freight traffic of 343 per cent. During the same period there was an increase in the ton miles per freight train mile, or the average freight train load, of 163 per cent. Through an increase of the train load, therefore, the railroads considered as one system, were enabled to handle an increase of traffic of 343.53 per cent with an increase of only 68.82 per cent in freight train miles; due also to the fact that heavier locomotives were used, locomotives of greater tractive power. But, no report being made as to tractive power of locomotives prior to 1902, we are unable to show increase for this period.

The effect of this was that this enormous increase in ton miles, which you will find on page 4 — you will find the figures for the basis of this chart on page 4, and the increase in ton miles of seventy billion, of 334 per cent, was handled by only 68 per cent increase in freight train miles, due to the heavier freight trainload of 112 per cent, or, during this period, the ton miles per freight train mile increased from 157 to 414. The coal reported as consumed, 305 per cent. Reducing this to terms of locomotive firemen and engineers, we find that the ton miles handled for each thousand dollars outlay for locomotive engineers and firemen, in the case of freight engineers was an increase of 161 per cent. That is for each thousand dollar outlay in 1913 as compared with 1890, the output in terms of freight engineers was increased 161 per cent; for freight firemen, 141 per cent. In terms of traffic units, the increased output or productivity of engineers per thousand dollars compensation increased 49 per cent during this period, and for firemen, 41 per cent; or, in other words, for each thousand dollars invested in 1913, as compared with 1890, there was an increase in ton miles handled by freight engineers of 2,290,176 tons; in terms of freight firemen, 3,464,000, in round numbers, and in traffic units, it was for engineers an increase of 910,000 and for firemen, 1,279,000.

Mr. Stone: What has been the effect upon the locomotive engineers and firemen of this development of operating efficiency?

Mr. Lauck: The effect, so far as we have been able to judge statistically upon the firemen — the ground that we have to that, we cannot show on this chart, because we have not the fuel consumed per locomotive mile. The fireman has to handle more coal, owing to the heavier locomotives and the heavier trainload for each locomotive mile operated. The effect upon the engineer — there is no statistical means of demonstrating, except in increased tractive power of the locomotives and the larger weight on drivers, the difficulty of handling a larger machine, the increased hazard, and the longer time on the road, which I think has been brought out in other connections.

Mr. Stone: It also shows there has been a large increase in the productive efficiency of both engineers and firemen?

Mr. Lauck: Yes. That is, looking at it from the transportation industry, from the standpoint of a business proposition. You invest so much in labor and get so much return. The productive efficiency of the engineers and firemen show this remarkable increase during the period of twenty-five years. I have endeavored to show that, further, on page 3. You notice I say there, "The growth of the productive efficiency of engineers and firemen" — pardon me for reading this; I want to go into this in detail, and then I thought we could take the other exhibit up briefly.

" The growth of the productive efficiency of engineers and firemen is evident from the increase in the freight train load."

That is, the freight train load is increased 163 per cent. "It is also forcibly shown by a comparison of the return made by these employes to the railroad, or the number of units of traffic hauled, with the outlay made by the railroads for engineers and firemen."

Now, this represents the fair comparison. That is, you put in $1,000 outlay for the railroads in 1890 and $1,000 in 1913, and you get this increase in ton mileage in terms of costs of locomotive engineers and firemen of 161 and 141 per ton, respectively, making a further comparison, as I have done on page 3.

We find "for each $1,000 increase in wage payments to freight engineers and firemen during the period 1890-1913"—

that is, for each thousand dollars additional for wage outlay for these classes of employes—this is considered as one system—"the companies received the following gains in the productivity of their engine crews: Freight engineers, 161 per cent; freight firemen, 141 per cent."

Mr. Stone: As the result of that increase in the volume of traffic, with comparatively small increases in train mileages, heavier train loads, it has added greatly to the burden of the firemen. They are compelled to handle very much more coal?

Mr. Lauck: Yes. It would seem that the onus of this increased productivity has fallen, so far as arduous labor is concerned, greatly upon the firemen, owing to the coal burning locomotives and the increased burning of coal and the increased amount of coal which it is necessary to handle per locomotive mile.

The point that it seems to me is the fundamental point to bring out is that the railroads, just like any other industry—like the steel industry, with its electric tools, or the cotton mill with its automatic looms—has added new machines to its equipment for hauling traffic in the effort to reduce cost.

They have also improved the roadbed and structures, and as the result of these capital commitments, working in co-operation with labor, there has been an increased output of productivity per unit of cost.

In the case of outlay for labor, the labor cost has been decreased, per unit of output. The productivity of the labor has been increased in terms or could be shown in terms per man, but it is unsatisfactory to attempt to show it that way, but its increase, in terms of cost, is indicated here and the effect of this development of operating efficiency, which is, of course, nowhere equaled in the world as it is in the American railroads—as a result of this additional capital commitment and new inventions and locomotives of greater tractive power and greater hauling power, has resulted in an increased output to labor. It has also added to the labors of the locomotive firemen, in terms of physical labor. In regard to the engineers—I am not competent to speak of that, though, because I am not a practical railroad man, and I think I had better not attempt to say what it has added to the engineer. I have no statistics to demonstrate that, and I am going on the figures now. It has added, of course, to his

hazard and responsibility, and I have read a good deal of the record and know what the men say about it.

Mr. Stone: You do not have to be a railroad man to say that it has added to the work of the fireman?

Mr. Lauck: No.

Mr. Stone: The figures themselves show that the fireman is handling an increased amount of coal of over 300 per cent, do they not?

Mr. Lauck: Yes, 305 per cent. The point, though, I wanted to reach or the conclusion I wanted to reach was that, in view of the fact that labor has become more productive, it has to work harder; the locomotive engineers and firemen have had to work harder, and that cost having been reduced, as I will endeavor to show later, it seems to me that is a legitimate ground for requesting an increase in compensation. The idea is that as a man becomes more productive, more efficient, works harder, he is entitled to increased compensation and to share in the productive gains made as a result of this development of operating efficiency.

Mr. Stone: Doesn't this chart also show another thing, that the increase in mileage has not kept pace with the increase in traffic handled?

Mr. Lauck: Undoubtedly. It is not shown upon this chart. It can be shown. I have figures which I might submit, if you wish.

Mr. Stone: Does not the chart show it, in a way?

Mr. Lauck: It shows it by the smaller increase in freight train miles.

Mr. Stone: You have increased 343 per cent in ton miles, with an increase of only 68 per cent in train miles.

Mr. Lauck: Yes, and reducing it to terms of locomotive engineers and firemen you would find a very small increase in train mileage, per engineer and fireman, thereby indicating that it is harder for a man to earn more, even at the increased rate of compensation, than it was in the past. In other words, a man cannot make the mileage now, evidently, from the figures, that he could in the past. If you have no objection I can submit a statement.

Mr. Stone: I have no objection.

Mr. Burgess: Won't you help us out on this, Mr. Lauck? We are somewhat confused in regard to that chart being the

same as the chart in Exhibit 21. I understood Mr. Stone to state that was just the same as the chart on page 2 of Exhibit 21.

Mr. Stone: It is supposed to be, unless there is some mistake.

Mr. Burgess: Just a moment. It says here "Ton miles per thousand dollars compensation to freight engineers," increase of 92.07 per cent, while there it shows 161.54 per cent.

Mr. Nagel: That bar runs clean across the page there, and here it is only about three-quarter across.

Mr. Sheean: That 161.54 and the 141 is apparently what is shown on page 3.

Mr. Lauck: Yes.

Mr. Sheean: That is the increase for each increased $1,000?

Mr. Stone: Here is the 21 I am quoting from and certainly there should not be two sections there.

Mr. Sheean: The two are not the same figures. One is what Mr. Lauck produces as the ton miles, per thousand dollars of compensation and the other one is what he assumes to be the ton miles, per thousand dollars of additional compensation.

Mr. Lauck: You will find on page 3 the figure in the chart.

Mr. Sheean: That is, as I follow him, taking the payroll at a certain period and getting certain results upon it, and then, by adding some amounts, he figures that each additional dollar of payroll, after a certain time, would produce a different result, from the part of the payroll that is below that figure.

Mr. Lauck: That is better than I could state it myself.

Mr. Stone: I think they have evidently made a mistake.

Mr. Sheean: No, it is all right.

Mr. Stone: In the first reprint they did not put the bars in,—

Mr. Sheean: As I understand, they are two different things.

Mr. Burgess: The heading on that chart says "freight engineers, ton miles per $1,000 compensation." It does not say "increased compensation," that is the 161.54, and the same heading here, "ton miles compensation" is 92.07. We ought to be clear.

Mr. Lauck: This is increase per thousand dollars increased compensation.

The Chairman: As I understand, in addition to what appears on page 2, you have also your conclusions on page 3.

Mr. Lauck: Yes, sir.

The Chairman: Showing an increase of 161 per cent?

Mr. Lauck: Yes, sir.

Mr. Byram: This chart is not intended to be a reproduction of that one?

Mr. Lauck: Not exactly.

Mr. Sheean: The language to the left is wrong, as Mr. Burgess suggests.

Mr. Lauck: Yes. This should be "ton miles per thousand dollars increase compensation."

Mr. Stone: Suppose we pass on.

Mr. Lauck: Referring to page 4, the table for eight representative railroads—

Mr. Byram: Before you leave that chart, there is just one question. Is the mileage of these 24 railroads the same during this period of 24 years? Does it represent practically the same mileage?

Mr. Lauck: You mean the miles operated?

Mr. Byram: Yes, and represented here.

Mr. Lauck: No. The reason I have 24 railroads here is that I endeavored to get as near as possible the same operating units. That is, of course, in a great many railroads there have been consolidations and extensions and reorganizations; but even in the case of the 24, the mileage operated is not identical, but I thought it would be perfectly proper to put that in on a unit of operating basis, because any extensions or any acquisitions of new lines would tend to decrease the productivity; that is, your branch line trainload would be less than the main line, and so on. I thought it would be perfectly proper to do that, and it would really be disadvantageous, to a certain extent, though not to any great extent, to our contention.

Mr. Sheean: Where did you get the figures for the Canadian Pacific which I notice on this page? They do not report to the Interstate Commerce Commission?

Mr. Lauck: They report to the Interstate Commerce Commission.

Mr. Sheean: For what part of the line?

Mr. Lauck: The Canadian line. They report, through courtesy, to the Commission.

Mr. Sheean: In the same form as the American railroads?

Mr. Lauck: Yes, in the same form. It is not required, but they do it.

Referring, then, to page 4, I have another chart in discussion, covering the eight typical or representative roads, the Atchison, the Burlington, the St. Paul, the North Western, the Illinois Central, the Northern, the Southern, and Union Pacific railroads.

This is a chart which represents these eight railroads considered as one system. The reason why I have used these eight railroads, they seemed to me to be typical of operating conditions and cover all variety of conditions and territory and would be representative of the real operating conditions in the western territory, more so than the preceding 24, which included a great many small roads and roads that had not developed operating efficiency to the extent that they might, or, that these larger representative roads had done.

Mr. Stone: In selecting these eight representative roads, you tried to get main trunk lines?

Mr. Lauck: Yes.

Mr. Stone: Covering a wide variety of territory and conditions?

Mr. Lauck: Yes.

Mr. Stone: And you give a list of those roads on page 4?

Mr. Lauck: Page 4.

Mr. Stone: And the chart is shown on page 5?

Mr. Lauck: Page 5, yes. These eight roads, considered as one system, show, for this period, an increase in traffic handled, in terms of ton miles of freight traffic, of 332 per cent, or a total traffic, as exemplified by traffic units, of 321.66 per cent. The freight trainload for these roads, considered as one system, shows a larger increase than for the 24 roads, due to the fact, undoubtedly, of their development of a higher degree of operating efficiency. The trainload increases from 150 tons to 440 tons, or 193.33 per cent.

Owing, then, to the development of this increased trainload, they were enabled to handle this enormous increase in traffic, amounting to over 300 per cent, with an increase of only 47.60

per cent in freight train miles. To do this, however, required an added consumption of coal of 268 per cent. Expressed in terms of productivity of the engineers and firemen, you have, for each $1,000 invested in this chart, not each increased $1,000, but each $1,000 invested, an increase of 115 per cent in the productive efficiency of freight engineers, and an increase of 106 per cent in the productive efficiency of freight firemen. Expressed in terms of all engineers and firemen, in all traffic, you have an increase for all engineers of 59.7 per cent and for all firemen of 53.15 per cent.

Mr. Sheean: Mr. Lauck, apparently the same crossing of your two exhibits has occurred there. Page 4, in the printed exhibit, you carry out those ton miles per thousand dollars compensation to freight engineers, 83.19, 49.14 and 41.14, while the chart to which you are pointing, I judge, carries out the per thousand dollars additional compensation.

Mr. Lauck: On page 5 is the chart which is reproduced this time.

Mr. Sheean: Then your page is wrong.

Mr. Stone: Page 4 is for the 24 railroads, not the 8.

Mr. Lauck: The basic table for this is on page 7. You see that is for the 24.

Mr. Sheean: Yes, I see.

Mr. Lauck: The supporting table.

Mr. Sheean: Yes. I had the wrong basic table there.

Mr. Lauck: I have thrown that in at the last, in each case.

Mr. Stone: All right, go ahead.

Mr. Lauck: Referring, then, to page 8, and taking up the Atchison, Topeka & Santa Fe, referring to the chart on that page, you will find an increase in freight traffic, second bar, of 371 per cent, an increase in total traffic of 381 per cent, an increase in freight train loads of 131 per cent, and the consequent handling of this enormous increase in the ton mileage of 371 per cent, being an increase of only 74 per cent in freight train mileage. The coal consumed to do this increased 207 per cent. Now, for the first time, we have the fuel consumed per locomotive mile in terms of pounds.

Mr. Stone: That is due to the fact that it is the record of an individual road?

Mr. Lauck: An individual road, yes, sir. I had no means

of showing that in the aggregate, in view of the fact that it is an average. It shows an average increase of 93.07 per cent. Referring to the table on page 10, the ninth item in the table, you will find fuel consumed per locomotive mile, in terms of pounds, increased from 79 pounds, in round numbers, in 1890, to 153 pounds in 1913, or an increase of 73 pounds, for each locomotive mile traveled, or 93 per cent during this period. Therefore, the conclusion we would draw from this is that, owing to the increase in the train load and the tractive power of the locomotive, that the fireman is required to handle 93 per cent more fuel in 1913, for each locomotive mile operated, than in 1890.

In terms of productivity of the engine crews, we have, for the Atchison, Topeka & Santa Fe, an increase of 126 per cent for freight engineers, and freight firemen 120 per cent. Expressed in terms of ton miles, on page 10, you will find the figures there, actual figures given for all the percentages appearing in this chart. Ton miles per thousand dollars' compensation to freight engineers, an increase of 2,618,422 ton miles, and for firemen 4,191,933. In terms of all traffic we have a productive efficiency of the engineers, as expressed in terms of traffic units, increased 71.95 per cent, and firemen 67.38 per cent.

Referring to the other combination on page 9, you will find for each $1,000 increase in payments to freight engineers and firemen during the period 1890-1913, that the per cent of the increase of 1890-1913, over 1890, for freight engineers, was 243 per cent, and, for freight firemen, 225 per cent.

Mr. Sheean: Right in that connection, suppose you found the total pay roll in 1913 to be less than the pay roll in 1890, how would you carry out this factor?

Mr. Lauck: Of course, we never ran across that tendency, because the traffic always increased enormously. If there was an increase in traffic and the pay roll was less—which it always proportionately is less—to the traffic, why, we would consider that as an advantage to the men, or the minus pay roll would be that much increased productivity, from the standpoint of the men.

Mr. Sheean: Do I understand that the per thousand dollars' increase is just taking the pay roll, irrespective of the number of men or the units, but for each $1,000 that you add to that pay roll?

Mr. Lauck: Yes, you get a certain increase in ton mileage, as compared to 1890. That is, taking 1890, for each $1,000 investment or outlay for firemen or engineers, you get so many ton miles over the road. In 1913, for each $1,000 outlay, you get so many ton miles over the road. Then, considering the increase in ton mileage during the period, as compared with 1890, and considering the increased payroll during the period, as compared with 1890, you get for each $1,000 increased payroll an increase of ton mileage amounting to this per cent. I happen to have the Atchison worked out here. If you would like to have it, I will give it to you. I thought that question might come up. (Handing paper to Mr. Sheean.)

Mr. Burgess: That would give, on this particular table, 243 per cent increase?

Mr. Lauck: Yes, in the productivity for the whole period, as compared with the beginning of the period.

Mr. Byram: Did you make any comment—I did not hear it if you did—on the last two figures on page 5, where the calculation is based on traffic units—did you make any comment as to your conclusions in regard to these two figures? I missed it if you did.

Mr. Lauck: I don't think I did; but the conclusion would be the same. That is, taking the chances of error into consideration, you would have all traffic, in terms of all engineers and all firemen, showing this increased output in terms of $1,000 outlay for engineers and firemen.

Mr. Byram: This would properly be applicable to the revenue perhaps more than to the earnings, would it not? The revenues of the company, because the revenue is based on these traffic units.

Mr. Lauck: Yes, I think so. That is a single division and more nearly a comparison that could be made.

Mr. Sheean: I would like to be sure that I understand this statement (referring to paper handed to counsel by Mr. Lauck). You have made a distribution on arriving at that deduction for freight engineers?

Mr. Lauck: Yes.

Mr. Sheean: So you have necessarily taken a part of that productivity and segregated it to freight. From the conclusion you have reached from it, the impression might follow that

the same result as to what remains for passenger distribution, that it must properly follow, in view of the deduction made there that there has been an increase in the cost to the company for each remaining passenger unit. Can't you carry out that some time and see whether or not the company has lost money for each additional $1,000 invested for passenger engineers?

Mr. Lauck: I think that would show that.

Mr. Sheean: So that if it be true, distributed this way, that the company has made more money on each $1,000 invested in passenger, it would follow, logically—

Mr. Lauck: It would not follow logically.

Mr. Sheean: It would follow, by the same line of reasoning, for every additional $1,000 paid out for passenger engineers and firemen, they were losing more money than they were before.

Mr. Lauck: I don't think it would follow logically or follow irresistibly, but it might follow from that.

Mr. Sheean: I did not mean to commit you to the proposition that it was logic, but, by the same logic that is used in making this deduction, the same conclusion, whatever it is, would be drawn as to passenger service.

Mr. Lauck: What that would show I do not know.

Mr. Sheean: I would like to ask you, Mr. Lauck, if it will not make much work — I assume you have the figures as to what you have taken for freight, how many traffic units you have distributed to reach this deduction, — to make a similar table for what the result has been on the Atchison, for their passenger service. That won't take long, will it?

Mr. Lauck: No.

Mr. Stone: I would like to call attention to one transposition of figures. This 321 per cent should be 332 per cent. And the 332 per cent should be here where the 321 per cent is. How it happened, no one knows. It has been checked over at least twenty times. The ton miles is 321 per cent, and the traffic units is 332 per cent, and we have them just reversed here, on this chart, and it is printed the same in our chart in the book.

Mr. Byram: I did not quite finish, Mr. Lauck. I wanted to get from you what your conclusion was as to the difference in the amount of increase per $1,000 of compensation to engineers and firemen, as shown by these last two figures on page 5,

and the figures just above those, where it is based, in one case, on the compensation to freight engineers and firemen, and, in the other case, where it is 115 per cent and 106 per cent, respectively; — and, in the last case, based on the traffic unit, it is only 59 per cent and 53 per cent, respectively. What is your conclusion as to the difference there?

Mr. Lauck: My conclusion in that respect is that the result is affected by the greater increase in ton mileage, as compared with the outlay, and that, probably, to get a more accurate result, considering all classes of traffic, you should count so many passenger miles as one ton mile, on the basis of revenue from a passenger mile. Of course, the revenue from a passenger mile will average, I should say, about two cents, or something like that. For a ton mile it will average about .7 per cent, .6 or .7 per cent, or .5, .6 or .7 per cent.

Mr. Byram: The difference in these percentages is due to the difference in the basis?

Mr. Lauck: Difference in the basis of computation, yes, sir. As I explained in the beginning, owing to the difficulties confronting any presentation of this kind, I can only show tendencies. I cannot show anything hard and fast. It seems to me all I can show is what is indicated as the increased output and relate that to firemen and engineers. I cannot show anything accurately, because I haven't the figures to do that.

Mr. Byram: The reason I spoke about it is because of the very wide discrepancy between 115 per cent and 59 per cent you say, when the basis is changed.

Mr. Lauck: Yes.

Mr. Byram: And yet it is all said to be on the basis of $1,000 comparison?

Mr. Lauck: Yes. Yes, I have noticed that a good deal, myself. I thought it would be well to show both bases, and willingly accept one, if you don't want to take the other.

Mr. Stone: Either one of them shows in our favor?

Mr. Lauck: Yes.

Mr. Sheean: That is why I thought of the discrepancy, that your passenger, segregated in the same way, would have to show a minus,. in order to bring your grand average down to this amount.

Mr. Lauck: Well, I don't know whether — I never worked

that out. I will try that, but I think that — of course the tendency is for passenger traffic to be a much more costly thing to the railroads than the freight traffic, and I think the Interstate Commerce Commission agreed with the railroads that that was true. They might be affected by that consideration.

Mr. Stone: Are you through with your Santa Fe?

Mr. Lauck: Yes.

Mr. Stone: Take up the next one then, the Burlington. Explain that in detail.

Mr. Lauck: Referring to page 10. There I take up the Chicago, Burlington & Quincy Railroad. The same method and same way of presentation.

Mr. Stone: The figures for this chart are on page 13, are they not?

Mr. Lauck: The figures for this chart are on page 13. The explanatory text is on page 12.

Mr. Stone: Well, briefly, what does it show, Mr. Lauck?

Mr. Lauck: Briefly, the Chicago, Burlington & Quincy shows an increased freight traffic of 340 per cent for the period of 1890 to 1913; handled by an increase of only 32 per cent in freight train miles, due to an increase in freight train load of 218 per cent, resulting in an increased consumption of fuel of 52 per cent.

Mr. Stone: That is per locomotive mile, not ton mile?

Mr. Lauck: Yes. Total coal consumed, 280 per cent. I should have said reduced to fuel terms per locomotive mile traveled or operated, there was an increase of 52.30 per cent. The resulting efficiency of their output in terms of $1,000 outlay for freight engineers, shows an increase of 110 per cent; for freight firemen of 101 per cent, and in terms of traffic unit or all traffic, an increase of 61 per cent for engineers, and an increase of 53 per cent for firemen.

Have you any further questions, Mr. Stone, on that?

Mr. Stone: No. No further question on that.

Mr. Lauck: Next, take up the Chicago, Milwaukee & St. Paul on page 13. Go briefly through that. The supporting table for that is on page 16; the explanatory text is on page 15. There we have a very large increase of 302 per cent in ton miles handled, with an increase of only 70.62 per cent in freight train miles. The larger amount of freight traffic being handled with

a corresponding small increase in freight train miles, being evidently due to the increase in ton miles per freight train mile, or average freight train load of 131 per cent.

The coal consumed in terms of total tons increased 303 per cent. The fuel consumed per locomotive mile increased 103 per cent. That is, for each mile operated there was an increased consumption of fuel of more than 100 per cent.

Mr. Stone: And you understood from that that the work of the fireman has doubled, increased 100 per cent in handling fuel?

Mr. Lauck: It is doubled on roads that use coal exclusively. The arduous labor has doubled.

Mr. Stone: This is from the company's own report, is it not?

Mr. Lauck: Yes.

Mr. Stone: And how do you account for the small increase in compensation,—in ton miles per $1,000 compensation, as compared with other roads?

Mr. Lauck: You mean in the productivity of the engineers and firemen?

Mr. Stone: Yes. 28 per cent and 26 per cent, where the Burlington was 110 per cent and 101 per cent?

Mr. Lauck: The only way to account for that on the basis of the statistics, is an added outlay, or an added amount reported by this road as paid to engineers and firemen, because the traffic has increased practically as much as the—the increase in traffic of the Burlington was 340 per cent; of this road, the Chicago, Milwaukee & St. Paul, it was 302 per cent. To be consistent, we would have to admit that there was a larger amount paid in terms to firemen and engineers.

Mr. Stone: They either were getting a large amount before or they are getting their work done cheaper now?

Mr. Lauck: Well, in terms of the aggregate outlay is what I am speaking of, not in terms of the individual engineer or fireman.

Mr. Stone: I understand.

Mr. Lauck: Of course, they evidently are getting their work done cheaper, but not proportionately as cheap as the other roads we have just been discussing.

Mr. Sheean: That is, which of the roads do you say is getting its work done cheaper?

Mr. Lauck: Why, the point was that—

Mr. Sheean: Which of the two, the Burlington or the Milwaukee?

Mr. Lauck: The Burlington. The Burlington showing an increase in train load of 218 per cent. I suppose there is no other road in the west more efficiently managed than the Burlington, or more economically operated, as indicated by its freight train load, 218 per cent, as compared with the St. Paul increase of only 131 per cent. And, therefore, the cost in terms of ton miles would obviously be lower on the Burlington, for firemen and engineers, granting that the same rate of wages prevail, which I don't know. I think the Burlington stands, as far as I have been able to judge from the figures, not being a practical operating railroad man, it seems to me that the Burlington makes a remarkable showing in every respect.

Mr. Sheean: A perfectly uniform scale of wages to the employes on both lines may produce just this result?

Mr. Lauck: Exactly. That is, assuming that the efficiency of the roads vary, you would then have—I don't think that would be a reflection on the employes. It would be a reflection on the operating efficiency of the railroad.

Mr. Sheean: Granting the same density of traffic, and the same territory also, I assume.

Mr. Lauck: You would have to.

Mr. Stone: The same grade run and a few other perquisites that go with it?

Mr. Sheean: Might this at all be affected by the building of several thousand miles of railroad on the Milwaukee out in a new territory?

Mr. Lauck: I had thought of that, when the question was raised. That is, the Puget Sound extension might have affected the density of traffic as compared with the whole system.

Mr. Sheean: And even though the scale of wages on that new line might be a higher scale of wages, if you please, for the sake of illustration, this density as shown here would not indicate at all whether the scale of wages was a fair or unfair scale of wages?

Mr. Lauck: Well, I think, in a case of a new line which is

just developing traffic, that the scale of wages could not be considered fair or unfair until the normal condition has been reached. That is, if you had a railroad which was just beginning operations, and you had not developed your traffic or your territory, it would seem to me it would be necessary to pay the same rate of wages, as the men would not be responsible for the risk you were taking for your capital, or for the lack of economic or normal conditions.

Mr. Sheean: Let me ask you this, while we are on those two tables; assuming the ton miles on the Milwaukee were ton miles made with livestock, while the ton miles made on the other one were ton miles of coal, could you tell anything about the results to either road by this table?

Mr. Lauck: You mean the revenue results?

Mr. Sheean: The revenue results, or productive results?

Mr. Lauck: No, you could not tell anything about the revenue, unless you had the rate per ton per mile for the different things. I am not speaking of revenues at all, or the financial side of the thing. I am talking of the physical or the arbitrary unit. The ton mile and the—

Mr. Sheean: Assuming that each kind of product is susceptible of transportation in the same number of units per train, whether it be live stock or coal or pig iron?

Mr. Lauck: Yes; I am assuming that through necessity. For instance, I was going to say in that connection it brings to mind something that has been quite harassing to me—the train load. The train load as reported to the Interstate Commerce Commission is the average, as I understand, of every train load for the whole system. It is the average of the branch lines, of their feeders, of the roads that may have a 70-ton—a road that may have a 70-ton freight train load; they are all averaged up into this. I think if we had a train load based on specific products, or based on specific divisions, that the showing would be much more favorable to our side of the contention here than it would be with this train load, because I have noticed in some of the annual reports of the railroad presidents to the stockholders, where they do divide the train load, for instance, I think the North Western, if I remember correctly, makes a train load east, and a train load west of the Missouri. That is a great variation, and if that could be worked out I would be

glad to see that worked out. You have the data to take certain trains and certain commodities.

Mr. Sheean: I do not quite follow you, Mr. Lauck, as to where there would be any change in the result. One territory might show a greater density—greater train loading than another.

Mr. Lauck: Yes.

Mr. Sheean: And, therefore, great productivity on your theory, on the part of the line that had heavy traffic.

Mr. Lauck: Yes, as compared with other parts.

Mr. Sheean: Therefore, less productive efficiency by the engineers and firemen on branch lines, where the lading was lighter?

Mr. Lauck: Yes, and this train load that we have is an average of all of them, and of course it is affected to that extent. It does not exemplify the highest degree of productive efficiency of the railroads, but the average. That is the point I want to bring out.

Mr. Stone: The fact remains that in all our exhibits we are handicapped all the way through, are we not, by the reports which the railroads do make to the Commission, which is the only basis we have for making our computation?

Mr. Lauck: Yes; just as we would be if we were a railroad, in making this ton miles comparison, we would have the data to make them a great deal more satisfactorily and without the technical objections which must necessarily be urged against them.

Mr. Sheean: Well, the railroads, Mr. Lauck, are under that same constraint of making it in just the form that the Interstate Commerce Commission requires.

Mr. Lauck: Oh, it is no reflection on the railroads. The reflection, if anywhere, is on the Interstate Commerce Commission, in the present instance, in not—it is no reflection on them either, but it is simply that we would like to see them different. But, I say that you have the data where you could make these things more accurate.

Mr. Sheean: That is, you mean by making observations during a particular time on some specified territory—

Mr. Lauck: No; for instance, a great many of the roads

engaged in the present movement have a division between freight and operating expenses. I do not know, of course, but—

Mr. Sheean: As to freight engineers and passenger engineers?

Mr. Lauck: Yes, sir.

Mr. Sheean: How would you classify a man who ran ten days in a month, a passenger train, and another ten, a way freight, and another ten, in the yard?

Mr. Lauck: I would classify him—I would assign him to the class of service. For instance, the Illinois Central, I was delighted to see in their annual report to stockholders, did make such a division. That is, they had cost of freight engineers—cost of road freight enginemen, I think the term is; cost of passenger enginemen. Maybe they did not have the passenger, but they had the freight. And I would simply charge, as they evidently did, the cost—if they ran a freight train, I would say so much for freight service; if they ran a passenger train, I make a direct charge.

Mr. Sheean: Irrespective of the individual who made it?

Mr. Lauck: Oh, yes; I would not consider the individual at all. But I notice in the Illinois Central, that we happen in that instance, in our computations, not to be much out of the way, according to that, in this division between freight and passenger traffic.

Mr. Stone: We were on the Milwaukee. Are you through with it? If so, we will take up the next one, the Chicago & North Western.

Mr. Lauck: Page 16. Take up the Chicago & North Western, if you please, and on page 19 the supporting table.

I might say that all these roads are arranged by a standardized form. That is, standardized statistics, you might say. The text is practically the same, and the charts are the same, and the tables are the same standardized form, only varying as to the figures or the showing made there.

Referring to the diagram on page 17, we have shown there an increase of 208 per cent, in round numbers, in freight traffic in the period 1890 to 1913. All traffic, as expressed in terms of traffic units, increased 217.95 per cent. The freight train load, referring to the bar No. 6, or the ton miles per freight train mile, increased 152.17 per cent, or in terms of actual ton miles, refer-

ring to page 19, the train load increased from 138 tons in 1890 to 348 tons in 1913, an increase of 210 tons, or 152.17 per cent.

By the increase of the train load and development of this train load, the North Western was enabled, therefore, to handle this increase of 208 per cent in freight traffic with an increase of only 18 per cent in freight train miles. The total amount of coal consumed increased 274.25 per cent. The fuel consumed per locomotive mile, or the increased amount of fuel handled per locomotive mile, to operate the engine, increased from 76.25 pounds in 1890 to 161.93 pounds in 1913, or 112 per cent, thereby adding to the physical requirements of the fireman.

The result of this operating efficiency, as expressed in outlay for engineers and firemen, is shown in the case of freight engineers to have been an increased productivity, in terms of ton miles in 1913 as compared with 1890, of 51.78 per cent, and of freight firemen of 56.08 per cent. In terms of all traffic, or traffic units, the percentages of increase shown are much lower, for the engineers amounting to 8.94 per cent and for all firemen to 12.02 per cent.

Mr. Sheean: Would you just as soon substitute this one, because I feel quite sure from this that it would illustrate what I want, instead of the Atchison, to show there—

Mr. Lauck: You mean in the computation?

Mr. Sheean: Yes, to show the decreased productivity in passenger miles per $1,000 paid to passenger engineers, and the decreased productivity in passenger miles paid to passenger firemen.

Mr. Lauck: You mean to say, if it shows that?

Mr. Sheean: Well, I assume from these figures it would have to show it; if there is an increase of 51 per cent in freight, and a total increase of only 8.98 per cent—

Mr. Lauck: Yes.

Mr. Sheean: That the item which is omitted between the two would almost certainly have to show decreased productivity, assuming these two deductions are correct; but see whether that would be true or not.

Mr. Lauck: I will see. For that reason, I have put in both sides; that is, as I have repeatedly said, it is a practical accounting proposition that we are up against, and we are going to show what is indicated, or the tendency. The increase is there

for all traffic, which is much greater than the freight traffic, of course, but by the method of distribution, if you show an enormous increase in freight, it might possibly be there would be a decrease in passenger.

The conclusions, of course, in the case of all roads, are the same as I have stated in detail. The leading conclusions, of course, that we are putting forward, are that the work of the fireman and engineer has been added to; his productivity has increased; that his earning power has decreased, although I do not show actual figures to demonstrate that, except the comparatively small increase in freight train miles as compared with the large increase in traffic, and the consequent indication that he cannot make as many miles as he formerly did, being paid upon the mileage basis.

I would next take up the Great Northern Railroad, on page 19, the supporting table being on page 22, and the explanatory text on page 21, and the diagram on page 20.

Mr. Stone: In the diagram on page 20, Mr. Lauck, is there anything in the reports of the Interstate Commerce Commission that these are copied from, to show how these roads get such an enormous increase in percentage? Did some roads start much lower than others? Is there anything to show where they did start? Take, for example, your first line here, the increase in locomotives in service, and the number of ton miles; the figures seem almost phenomenal, to look at them.

Mr. Lauck: Well, the Great Northern has had a phenomenal development. I think the Great Northern has been the pioneer in the train loading movement, if I am correct.

Mr. Stone: They have the tonnage system copyrighted, have they not?

Mr. Lauck: They began it much sooner than the other railroads, and for this long period, this development of operating efficiency being in vogue, they would show a much larger increase. When we get down to other periods, having attained a large train loading before the other roads already, if I am correct in thinking this, they would show a comparatively smaller decrease for succeeding periods. Of course, in this long period of comparison, the train loads are apt to be small at the start.

Referring, then, to this chart or diagram on page 20, we find the extraordinary increase in freight traffic, as mentioned by

Mr. Stone, of 1138.72 per cent during the period, 1890 to 1913. The train load during this same period, or the ton miles per freight train mile, increased 222.34 per cent. They were, therefore, able to handle this large increase in freight traffic with an increase of only 339.18 per cent in freight train miles, resulting in an increase in productivity, in terms of freight engineers, amounting to 85.34 per cent, and of freight firemen to 69.70 per cent, and for all engineers of 41.16 per cent, and of all firemen of 29.25 per cent, respectively. The physical burden of the increased traffic development, so far as we are able to ascertain it by statistics, being an increase in fuel consumed per locomotive mile of 136.39 per cent.

Mr. Stone: They must have been pulling some of that iron ore out of that Superior country in those heavy trains?

Mr. Lauck: That probably affected the train load to a large extent. It is like the Bessemer & Lake Erie.

Mr. Shea: I see on page 20, the chart is computed from 1891 to 1913, while the other tables are from 1890 to 1913. Is that a typographical error?

Mr. Lauck: No. I should have mentioned that. It is due to the fact that the first report available was in 1891, and we could not get the 1890 report.

Mr. Sheean: In 1891 it was confined to two states, was it not, this system, to Minnesota and Dakota, and since that time, and in 1913, you are comparing it with the Trans-Continental Line which runs to the Coast, in these enormous percentage increases?

Mr. Lauck: I do not know what the state of the operating unit was exactly in 1890, but practically it was as you state, yes.

Mr. Sheean: Do you happen to remember what the difference in the mileage between 1891 and 1913, that you are comparing, was?

Mr. Lauck: No, I do not.

Mr. Sheean: There is pretty nearly as big an increase in the mileage as in these other percentages you are showing.

Mr. Lauck: I do not think that would affect the result, unless there was a very low degree of operating efficiency in that year with which we are making comparison; and, of course, that would be caught in their later comparisons.

Mr. Sheean: Or operating opportunity?

Mr. Lauck: Yes. Of course, the fact of the productivity, which is the fundamental fact I want to lay stress on, would still remain. If there are no further questions, I will take up the Illinois Central, on page 22, the diagram on page 23, and the supporting text and table following.

In the case of the Illinois Central, during the period under consideration, 1890 to 1913, we have an increase in ton miles or freight traffic, of 594.63 per cent; an increase in the freight train load of 203.73 per cent, and a consequent handling of the extraordinary increase in freight traffic of 594 per cent with an increase of only 125.10 per cent in freight train miles.

The result of this development of operating efficiency, so far as fuel consumption is concerned, is shown in the fact that it has been necessary in 1913 to handle 146 more pounds of fuel for each locomotive mile traveled, and in terms of productivity of freight enginemen, we would have an increase for freight engineers of ton miles for each $1,000 compensation, of 77.32 per cent more in 1913 than in 1890, and of freight firemen of 43.33 per cent more in 1913 than in 1890. In terms of traffic units or all traffic, we have an increase to engineers for each $1,000 outlay of 46.80 per cent, and to firemen of 18.65 per cent.

I will next take up the Northern Pacific, on page 25, the diagram on page 26, and the supporting data following in the explanatory text.

In the case of the Northern Pacific, in 1913 as compared with 1890, we have an increase in freight traffic, as can be seen on the diagram, of 468.69 per cent. The freight train load increased 316.92 per cent, as shown by the fifth bar of the diagram, ton miles per freight train mile. As a consequence, it was possible to handle the increased number of ton miles of 468.69 per cent, with an increase of only 28 per cent in freight train miles. The resulting efficiency or productive efficiency, or output on the part of employes for each $1,000 outlay, was, for freight engineers, the fourth bar from the bottom of the diagram, 170.59 per cent; freight firemen 134.79 per cent; for all firemen 53.38 per cent; and for all engineers 76.77 per cent.

The resulting increase in consumption of coal per locomotive mile, was 125.12 per cent for each locomotive mile traveled, or the necessity of traveling 125 per cent increase in fuel for each mile. The total coal consumed increased 333.87 per cent.

I think the Northern Pacific makes a more remarkable showing than the Great Northern—No, the Great Northern leads the Northern Pacific.

Mr. Stone: But it is a very remarkable showing, that that increase of 468 per cent in ton miles could be handled with an increase of only 28 per cent in train miles?

Mr. Lauck: Yes, sir.

Mr. Stone: It pretty nearly shows that the earnings of freight men on the mileage basis did not increase with the volume of traffic?

Mr. Lauck: Yes, sir; it would indicate the inability—I have no figures to support that, but it would indicate the inability to make the same mileage as heretofore.

Mr. Sheean: There was an increase of several hundred per cent in the payroll?

Mr. Lauck: Yes, a great increase in the payroll.

Mr. Sheean: You are considering these two periods here, 1910 and 1913. Turning to your other statistical basis, as I get it, the engineers in 1910 were getting $740,826 as against $2,176,761?

Mr. Lauck: Yes.

Mr. Sheean: Pretty nearly the same percentage of increase in payroll as the percentage of increase here, was there not?

Mr. Lauck: Yes, but in terms of cost per unit of output, you will probably find a much lower cost per ton mile in terms of engineers now as compared with 1890. That is the point I mentioned a while ago. It does not seem to me that the amount of dollars and cents in the payroll amounts to anything, except, of course, the ability to meet the payroll.

Mr. Sheean: We have been afraid that that is what you gentlemen think, while we think it is very important to know what it means in dollars and cents in the payroll.

Mr. Lauck: Well, of course, it is important; I would not put it that strongly; but in terms of operating a railroad, it is not, it seems to me, except from the standpoint of credit and ability to finance the railroad, so much the amount of money as it is what it costs you in terms of payroll for what you are producing and what you get for what you produce. Although, as is often said in the case of a railroad, for every dollar of revenue, the railroads have to pay forty some cents to labor,

whatever it is, it does not seem to me that is a significant statement, except as to the ability to finance the railroad.

Mr. Sheean: And to pay the labor?

Mr. Lauck: I beg pardon?

Mr. Sheean: It is also significant in paying the labor, to get it.

Mr. Lauck: Yes, but the significance in the present connection is what it is costing you, in terms of labor and ton miles, and traffic units, to operate the railroad, and you are doing that cheaper now than you ever have done. Unless the profit is eaten up in some other way, for which, of course, the labor is not responsible, it seems to me there is every reasonable ground for a reasonable request for an increase in wages, provided the output, the cost and the work have increased, as I am endeavoring to show.

Mr. Stone: Then you do not think, so long as it could be shown that they handle more tons than ever, and have a cheaper cost than ever before, that there should be any particular objection on the part of the railroads?

Mr. Lauck: No, sir; not if they are getting commensurate rates per ton per mile for their services. If they are not, why—

Mr. Stone: Well, the engineers and firemen have not anything to do with their getting the rates, have they?

Mr. Lauck: Nothing whatever, and of course—

Mr. Stone: And they have not anything to do with the way they expend the money they get from the rates, have they?

Mr. Lauck: No, and of course you could not take into consideration the other failures of operating management or financial management they might have; because where there are large revenue gains, they might be dissipated by improper financial management, or we might have cases where the productive efficiency of the engineers and firemen might be lost from improper operating efficiency. It seems to me that the greatest factor, though, is not the operating efficiency, where anything is lost that way. It seems to me the danger is on the financial side, where increased returns may be improperly used.

Mr. Stone: I would like to ask, if I might, Mr. Chairman, where counsel for the railroads got the figures he read into the record?

Mr. Lauck: From the basic table.

Mr. Sheean: Exhibit 20, page 38.

Mr. Lauck: Yes; they are correct, I think.

Mr. Stone: I want to make a note of it.

Mr. Sheean: As to the Northern Pacific, it is on page 40.

Mr. Stone: But regardless of the size of the pay roll, you would treat $1,000 in 1913 the same as you would treat $1,000 in 1890, would you not?

Mr. Lauck: Yes, I am making a comparison, as I stated in the beginning, I am comparing the output of the road in terms of these traffic units and ton miles with the compensation, expressed in terms of thousands of dollars, with the engineers and firemen; and the point, it seems to me, is that the dollars and cents are not important or significant in this connection, but it is the units which are used to designate the service performed by the railroads; and, accepting those units as they are, the ton mile and the passenger mile, we have a productive efficiency based on the handling of so many units per thousand dollars to outlay to engineers and firemen.

I would like to take up next the Southern Pacific, page 31.

Mr. Stone: You skipped the Oregon Short Line, pages 28 and 29.

Mr. Lauck: Yes, the Oregon Short Line, I should have said; the diagram is on page 29, and the supporting data following, and the explanatory text.

In the case of this railroad, the Oregon Short Line, the first year with which the comparison is made is 1892, owing to the inability to get figures prior to that date for the comparison.

In 1913, as compared with 1892, the freight traffic of this road had increased 319.25 per cent, as exemplified by the increased ton mileage. The total traffic, as designated by this arbitrary traffic unit, increased 305.67 per cent. The freight train load, ton miles per freight train mile, increased 204.88 per cent.

During this period, therefore, it was possible to handle the increased freight traffic of 319.25 per cent with an increase of only 43 per cent in revenue freight train miles. The resulting increase of productivity on the part of freight engineers and freight firemen coming from the increased train load and the handling of a larger amount of traffic with fewer freight train

miles is 125 per cent, in round numbers, for freight engineers, and 101 per cent for freight firemen. For all engineers it was 80 per cent, and for all firemen as expressed in traffic units, 61 per cent.

The resulting increase in coal consumption was 242 per cent; and reducing it to a locomotive mile basis, there was an increase of 104.48 per cent in the pounds of coal handled per locomotive mile.

Taking up, then, the Southern Pacific Company — have you any questions on that?

Mr. Stone: No.

The Chairman: We will take a recess until 2:30.

(Whereupon, at 12:30 o'clock p. m., a recess was taken until 2:30 o'clock p. m.)

After Recess.

The Chairman: You may proceed, Mr. Stone.

W. JETT LAUCK was recalled for further examination, and, having been previously sworn, testified as follows:

Mr. Stone: When you closed at noon you were just turning to the Southern Pacific, I believe?

Mr. Lauck: Yes, sir.

Mr. Stone: All right; go ahead.

Mr. Lauck: The Southern Pacific section appears on page 31, diagram on page 32, and the supporting statistics on page 34.

Referring to the diagram on page 32, it is shown there that there was an increase in freight traffic or ton mileage during the period 1890-1913, of 309 per cent, in round numbers. The increase in the trainload or ton miles per freight train mile was 226 per cent. It was therefore possible for this railroad to handle this increase in freight traffic by an increase of only 23 per cent in freight train miles.

The amount of fuel consumed, the coal, decreased, due, undoubtedly, to the use of oil burners upon this road. The coal decreased 86 per cent. The fuel consumed per locomotive mile, or the amount of fuel handled for each locomotive mile operated, increased 126 per cent. The productive efficiency of freight engineers for each $1,000 compensation, in 1913, was 115 per cent more than in 1890, and of freight firemen, was 132 per cent

more than in 1890. On a basis of traffic units for all traffic, the productive efficiency of all engineers increased 22 per cent, and of firemen 32 per cent.

Referring to page 33, we have a computation as to the per cent of increase for each $1,000 additional invested, or outlay, for freight engineers and freight firemen, and we find the enormous increase for freight engineers of 241 per cent, in productive efficiency, and of freight firemen 305 per cent. The next railroad—

Mr. Stone: Before you leave that, Mr. Lauck, the result of this shows that there has been a very large increase in the volume of traffic, with a comparatively very small increase in mileage?

Mr. Lauck: Yes, there has been an increase of over 300 per cent in freight traffic, which is handled by an increase of only 23 per cent in freight train mileage, or taking the total traffic, as expressed in traffic units, there was an increase of 277 per cent, which was handled by 100 per cent increase in revenue train miles, thereby indicating a much smaller increase in mileage than in traffic, due to the fact, of course, of handling it with fewer freight train or revenue freight train miles.

The next road that I show the data for is the Union Pacific.

Mr. Sheean: Just before you go to that, for information, on the third, fourth and fifth items on that chart—I am not sure that I understand these percentages there.

Mr. Lauck: The number of traffic units?

Mr. Sheean: Number of traffic units, 277 per cent, freight train miles.

Mr. Lauck: 23 per cent. That is revenue freight train miles.

Mr. Sheean: And revenue train miles of 100.6 per cent?

Mr. Lauck: Yes. In one case we have — the traffic units consist of, as I explained this morning, the adding of train mileage and the passenger mileage together, simple addition. The freight train miles or revenue freight train miles which are reported by the railroads to the Interstate Commerce Commission. The revenue train miles are all the revenue train miles operated either for passenger or freight traffic, as reported to the Interstate Commerce Commission by the railroads. In other words, the railroads report to the Interstate Commerce Commis-

sion revenue train miles, non-revenue service train miles, total train miles, composed of non-revenue and revenue. This revenue train mile refers to traffic carried for revenue only, and is comparable with traffic units. The revenue freight train mile refers to freight train traffic carried for revenue, and is comparable with train miles.

Mr. Park: You made no attempt to take into consideration the enormous expenditure to change the physical condition of the Southern Pacific in making any of these computations?

Mr. Lauck: Not in this, no.

Mr. Park: For instance, they reduced the altitude at Piedmont 1,500 feet. Reducing the cut-off across Salt Lake, which alone enabled them to haul a great many more tons with less mileage. That was done all over the system. You did not take that into consideration?

Mr. Lauck: No, I did not take into consideration any capital outlay at all in this consideration. I am just showing here the increased output in terms of outlay for engineers and firemen. The increased efficiency as measured by the output in ton miles and traffic units per $1,000 outlay in wages.

Mr. Stone: If there was an elimination of curves or reduction of grade run it would simply increase the productive efficiency of one unit or one engineer and fireman, wouldn't it?

Mr. Lauck: Yes.

Mr. Stone: One engine or one man to handle more tonnage. That would be the result?

Mr. Lauck: Exactly. If they would reduce the curves or eliminate the grades or put in heavier rails in order to use the heavier locomotives, you would, by using that locomotive, increase the operating efficiency or productive efficiency of the road, and the point here is, that, by doing that the output of the man has been increased, but his work and hazard or his responsibility has increased, and of course when it comes to any determination of revenue, gains and profits, you would have to make an allowance for the increased capital investment. But, in this connection, I am not taking up revenue gains or any amount available for labor after capital has received a fair and reasonable return for these increased investments. I am speaking simply of the productive efficiency in terms of output.

Mr. Burgess: Mr. Lauck, referring to the last paragraph

on page 33, where you say, "The earning power of engineers and firemen, despite their increased productive labor and responsibility, has declined," won't you explain that a little bit to us?

Mr. Lauck: That is explained on the basis that the mileage has not kept pace with the traffic. That is, of course, the great object, as I understand it, in operating a railroad economically or effectively, is to handle as much traffic with as few train miles as possible, and by increasing the trainload and putting more tons on a train, you decrease the necessity for running more miles to get a certain amount of traffic over the road. Therefore, by increasing the trainload in the remarkable way that has been done, you have decreased the necessity for making train mileage, or the train mileage does not increase in proportion to the traffic handled or transported.

Now, I say there, "Freight train, freight locomotive, and total revenue train mileage have not increased proportionately with other factors." If it were necessary, you could show by comparing the number, if we had satisfactory figures as to the numbers of engineers and firemen, that there have been a very small number, if any, so far as I have been able to look into it, in the mileage per man. That is, there has been a tendency for the mileage per man not to increase at all, to any appreciable extent, compared with traffic. In other words, there has been a tendency the other way, due to the fact that it evidently takes longer to get the train over the road. There is more arduous work on the part of the fireman to shovel coal for one of these heavy trains. He cannot make the mileage he formerly could make. In considering factors of that kind. I have not shown that by statistics though, but I think that undoubtedly would be true if you would look into it on that basis. I don't know whether that answers the question or not.

Mr. Burgess: Yes.

Mr. Lauck: There is no doubt about it, though, that the ability of a man to earn has not kept pace with the increase in traffic, owing to the increased exactions upon the men in operating the railroad.

Mr. Sheean: Mr. Lauck, I still am a little in doubt about those two items, and I fear I do not understand them. The detail given on page 34, of those same two items, about which I asked you.

Mr. Lauck: Referring to page 34, in the third item in the table, traffic units, consist of the returns as to freight traffic and passenger traffic, or ton miles and passenger miles, added, simple addition. I considered one passenger mile as equivalent to one ton mile.

Mr. Sheean: I understand that, but the next item, freight train miles, seems to show here an increase during that period of only—

Mr. Lauck: 23 per cent.

Mr. Sheean: Yes, or 1,930,000, while the revenue train miles shows 16 times that much.

Mr. Lauck: Yes.

Mr. Sheean: So that the passenger traffic is where the increase in the revenue train mileage is largely made up there.

Mr. Lauck: I think so, undoubtedly.

Mr. Sheean: Probably sixteen to one.

Mr. Lauck: Yes.

Mr. Sheean: Then, if there is a decreased productive efficiency on sixteen to one parts there, that would appear, if you carried out the same average as to passenger traffic, in that same relative proportion, would it?

Mr. Lauck: I think, answering that question, and the question you raised about the Santa Fe this morning, I think it was, and some other road you asked me to work out, which I have not had an opportunity to do yet, I think the answer to that question is this, Mr. Sheean, that to use a somewhat popular or slang phrase, we are up against it in attempting to work out this productivity, due to the fact that we have not the data to work it out to a mathematical nicety; that is, we have to distribute the cost as to freight engineers and freight firemen on an arbitrary basis, which is a well accepted basis, however, and I think that you will find, in a great many instances, on that basis of computation, there has been a decreased productivity for passenger traffic. On the other hand, I have attempted to obviate that by showing for all traffic, which shows, say, in this case, we have the difference between traffic units or productive efficiency for all traffic of 282 per cent, and 417 per cent for engineers. Now, I am not attempting to work this out to a mathematical nicety and say that either one of them is accurate. I just wanted to explain, what I am perfectly willing to say is that the productive

efficiency of engineers and firemen falls somewhere between 282 and 417, and I am perfectly willing to accept any point between.

Mr. Stone: What page are you reading from?

Mr. Lauck: Union Pacific, page 35. I was illustrating by that.

Mr. Stone: He is talking about 32.

Mr. Sheean: Yes, the Southern Pacific.

Mr. Lauck: I was just illustrating by that. Well, take the Southern Pacific—

Mr. Sheean: I was just wondering, on that distribution as made there in that manner, whether it did not lead to a conclusion that you knew was inconsistent with the actual facts?

Mr. Lauck: Decreased productivity from passenger traffic?

Mr. Sheean: Yes.

Mr. Lauck: Yes. Well, I do not know what the fact would be there. It seems to me from a comparison of those ratios, I know on other roads it is true. The point I wish to make is, that not having a method which I could rely upon in any one instance as being absolutely accurate, I have put both methods in. If I would follow my natural inclination, I would put still another method in. My object is to show the tendency, that is, that the transportation industry, like any other industry, has been marked by this remarkable development, and has been accompanied by this increasing productivity of labor, working in connection with better equipment and more extensive capital commitments.

Now, realizing that this division in the case of freight traffic might not be satisfactory, I have put in all traffic. Both of them are arbitrary designations. But, in the case of the Southern Pacific, for instance, on the basis of all traffic to engineers, it shows only 22.32 per cent increased productivity for $1,000 outlay during this period. For freight engineers it shows 115 per cent. I say that my point is that both of these exhibit a tendency, illustrating the increased productivity of the engineers or engine crews working on this road with better mechanical devices, better locomotives and more extensive capital commitment. And it is not a point that I would haggle over, whether it is 22 or 115. I know it is somewhere between those two. I think it is approximately between 22 and 115, and the point I want to establish is the tendency is toward increased productivity as compared

with each $1,000 of outlay. I don't know whether I make myself clear—

Mr. Sheean: It was simply that very widespread in that one case.

Mr. Lauck: I only give this as illustrating a tendency. I do not defend them as being accurate in every respect.

Mr. Stone: But you do defend as accurate the figures from which they were derived?

Mr. Lauck: The figures from which they are derived, upon which they are based, are accurate. They are the figures reported by the railroads, and being confronted with the necessity of making some distribution between freight and passenger traffic, I have adopted the revenue train mileage basis, which is the basis that the Interstate Commerce Commission formerly used, and which is generally accepted by a great many railroads. And, then, feeling that that might be subject to criticism, I have taken all traffic; but, if we had satisfactory figures as to the number of men, we could show this, and the figures do show even, such as we have, that per fireman and per engineer the productive efficiency has been just as marked as in the case of per $1,000 outlay for engineers or for firemen, so any standard, any reasonable standard, of that kind illustrates the general tendency which I wish to establish.

Mr. Sheean: When you refer to the figures that you have per fireman, are those in any one of these tables?

Mr. Lauck: I haven't used them because they have been so generally criticised and generally considered unacceptable, because of the average daily compensation that has been computed on them, I thought it would be better not to bring them into the case. That is, the railroads report a figure to the Interstate Commerce Commission, the number of men employed on June 30th, and, of course, to work a wage data or work any data of this kind you have just one day in the year compared with all the other operating factors for the year, and I could not accept them on that account. I think next year—the Commission has changed its classification, owing to protests—and we are going to have more satisfactory figures. Right now we haven't got them.

Mr. Stone: Isn't it a fact it became necessary to have a

change in the form on account of the inaccuracy in the report, in regard to the number of men employed?

Mr. Lauck: Yes, the figures were not—that is, on June 30th there might be a depression in traffic, and a few men reported, or vice versa. The figures were unacceptable, for that reason.

Mr. Stone: Conceded by all parties concerned as not being correct?

Mr. Lauck: Yes. And the Interstate Commerce Commission has changed the method of reporting.

Mr. Stone: Taking the figures as inaccurate, as we know them to be, isn't it a fact that they would show this same result?

Mr. Lauck: They would show the same result. I have worked them out for all railroads. They show even a more marked tendency than the traffic unit. That is, they show an increased productivity per man comparable somewhere between ton mileage and all mileage. Perhaps I have one here I could read.

Mr. Stone: I don't think it matters. It is figures we would not care to put up; figures we have stated were not accurate and that we could not use.

Mr. Lauck: It shows, per man, 110 per cent for this period. The increased productive efficiency, per engineer, is 110 per cent. and, per fireman, is 112 per cent.

Mr. Sheean: What is the percentage increase per man in their compensation for that same period?

Mr. Lauck: Why, I don't know anything about that.

Mr. Sheean: Well, if you have the number of men and you have the total compensation during the two periods, you can carry out the same percentage increase in their wages that you can percentage increase in the number, can't you?

Mr. Lauck: I am not saying so. I do not accept the number. I was just illustrating.

Mr. Sheean: Where you say there was 110 per cent increase per man in what they did, what is the percentage increase in the pay of the men during the same time?

Mr. Lauck: I don't know.

Mr. Sheean: They are involved in the same figures from which you draw this conclusion, aren't they?

Mr. Lauck: I haven't them here. You could tell that from

the method of reporting, but I don't think that anybody would accept a figure on that basis for the very reason I have eliminated them here.

Mr. Sheean: They are just as good for one purpose as the other?

Mr. Lauck: That is why I did not use them, yes, sir. I do not think they are good for any purpose. If we had good figures I think they would be the best figure we could have, per man productivity, but we haven't got it.

Mr. Nagel: You accept the figures filed by the railroads as the basis for your calculations?

Mr. Lauck. Yes, sir.

Mr. Nagel: And you conclude from them that the wages of engineers and firemen have not increased in proportion to the increased productiveness?

Mr. Lauck: Yes, sir, I conclude that the cost to the railroads for handling traffic, per unit of output, has decreased; while the units of output handled, per dollar of outlay and labor, have increased.

Mr. Nagel: But you do not attempt to reduce those proportions to exact figures?

Mr. Lauck: Not to the per man basis, no, sir.

Mr. Nagel: You content yourself with finding that there is a general tendency?

Mr. Lauck: Yes. I would not hesitate to do that. It is not through any desire not to do it, but I simply haven't the data to do it. That is, these numbers I cannot use because I do not think they could be used for that purpose.

Mr. Nagel: You admit that the increased tonnage per mile has to be ascribed to several factors?

Mr. Lauck: Yes, sir. I think we should give full recognition to capital.

Mr. Nagel: In other words, if a road has improved its track, has straightened and leveled its road and the rails are improved, that might enable that road to get better results, without subjecting the men to any additional labor?

Mr. Lauck: Yes, sir.

Mr. Nagel: If the engine power is increased, then the road would get a general result to which the engineer and fireman,

in some measure, contribute, because of the additional labor put upon them?

Mr. Lauck: Exactly; yes, sir.

Mr. Nagel: And your difficulty is in distributing these benefits among the several factors that go to make them up?

Mr. Lauck: Yes, sir. I say I cannot do that accurately, but I can only exhibit a tendency which seems to me quite pronounced, by any standard we may adopt. I hope to show, later on, that these capital factors and increases in investment and improvements should receive their due reward and that there is sufficient to compensate labor. I think that is indispensable to the argument.

Mr. Nagel: Have you undertaken to show what the effect on other employes of the road is, by the same comparison?

Mr. Lauck: No, sir; I have not.

Mr. Stone: Mr. Lauck, we are not having any trouble with the railroads over the question of increased productivity, are we,—the only question is trying to get them to divide up?

Mr. Lauck: Yes, sir.

Mr. Stone: In other words, getting for the engineers and firemen what we believe to be their fair share?

Mr. Lauck: The point I am trying to contend for is that they have not received a fair share in the output of the industry. That is on the basis of the productivity of the men and the additional requirements placed upon the men.

I believe I was on the Union Pacific. Referring to the Union Pacific Railroad, page 35, I have the same diagram, showing the increase in freight traffic of 205 per cent, increase in all traffic of 198 per cent, and increase in freight train load of 117 per cent, which enabled the freight traffic of 205 per cent to be handled by an increase of only 22.8 per cent in freight train miles. The total traffic of 198 per cent or traffic units was handled by an increase of 79.9 per cent in revenue train miles. As a consequence, the productive efficiency of the freight engineers, per $1,000 invested, was 417 per cent more in 1913 than in 1890, and of freight firemen, 377 per cent more in 1913 than in 1890, or, considering all traffic, we have an increase of 282 per cent in the productive efficiency of engineers, and 252 per cent in the productive efficiency of firemen. Quite a remarkable showing for this road, as compared with some others.

Mr. Park: Would not that indicate to you that there had been great physical changes in the road that had contributed largely to that increase?

Mr. Lauck: Yes, sir; I think it would. I think capital is the predominating factor here, and it is like any other industry, that the machine is supplanting the man, and that the productiveness is fundamentally based upon the installation of a better machine in that industry, whether an improved locomotive or additional capital investment in the way of reducing curves and making it possible to get a heavier train over the road. I think, in this case, however, that there have been increased requirements placed upon the men, and that they have a reasonable ground for requesting to participate further in the productive efficiency which has grown out of the co-operation of both labor and capital.

Mr. Park: But, it is a fact that, since your two figures there, between your two figures, the Union Pacific Railroad has been practically rebuilt, grade elevations cut down, and an engine of the same capacity, not using any more coal, would pull probably twice as many cars over the road as it would in 1890?

Mr. Lauck: Well, in a case of that kind where you had a capital investment—say, eliminations of curves or reductions of grades, which enabled the same locomotive to pull a heavier load, and if you will assume that it got over the road in the same time as the old locomotive, why, it would seem to me that there would not be any ground, owing to increased requirements of engineer and fireman, to participate in the increased output, except the general ground that labor—I would hold to that view—that labor should share in the productiveness of industry. It would not be due to labor, but due to capital in that respect.

Mr. Nagel: But there would be greater labor and greater responsibility incurred, wouldn't there?

Mr. Lauck: Yes.

Mr. Nagel: That would be the basis, wouldn't it?

Mr. Lauck: Yes, there would be more responsibility, because of the heavier train, more goods under the direction of the engine crew, and it would undoubtedly require longer time and decrease the earning ability of a man, it seems to me. Personally, I should think, then, even then, that labor should participate, because I think personally that if we are going to have

an economic advancement, labor should participate in these productive gains, even though it may be an unearned increment. If you apply the theory that labor should not participate, in some industries you would have a constant degredation of labor instead of a constant advancement, which it seems to me would be bad for the industry. For instance, in a certain industry you can use a machine and supplant skilled labor by unskilled labor. It has been accepted in those industries that the labor should not be denied participation. For instance, in bituminous coal mining you have a machine invented for mining coal, and the man who works on the machine, by agreement, is given as high wages as a hand miner, although he is reduced to the position practically of an unskilled laborer shoveling coal behind machines. I think the principle, even there, is recognized that the introduction of machinery would—that labor should participate to some extent at least in the benefits arising from that machinery.

Mr. Byram: But do you think it ought to work the other way, where, by a combination of circumstances, the productive efficiency of the employe is reduced, that his compensation ought to be reduced?

Mr. Lauck: I think that this theory assumes that the employes must be efficient. That is, if I expect to participate in the output, that the employer or the railroad, or any other industry, should require the efficiency from the employe. They should co-operate and be efficient.

Mr. Byram: And it ought to be graded according to their productive efficiency.

Mr. Lauck: If you could work it out, yes, sir.

Mr. Stone: From your general knowledge of railroad finances on the Union Pacific, is there any doubt in your mind about the capital invested in the Union Pacific getting their share of the productivity of that road?

Mr. Lauck: No, I don't think there is the slightest doubt of that, of course. Capital has been more than amply rewarded. Just two months ago, I think, there was a special dividend of 37 per cent declared on the Union Pacific, was there not, on the holdings of the B. & O.

Mr. Stone: They cut so many melons, I don't know whether it is two months ago or three.

Mr. Lauck: It was recently, I think.

Mr. Nagel: Does this plan of participation conflict in any sense with the demand for standardization?

Mr. Lauck: I have thought a good deal about that. It does not seem to me that it does. I do not believe in standardizing men regardless of their efficiency, or "leveling up," as trade unions are accused of. But it seems to me that if you base the standardization on a locomotive's tractive power, wherever that locomotive may be, if the man operates it he must do the same work as any other man anywhere else. Of course, if he is inefficient and cannot operate it, he ought to be discharged, but I don't think it conflicts with that principle. I do not believe in leveling up people by the force of bargaining power, or anything of that kind. It does not seem to me to conflict.

Mr. Stone: But is it a fact that in the railroad service, the transportation service especially a man who goes out with a locomotive, has to have a certain standard of efficiency. He must handle the train and get over the road, or tell why he did not do it.

Mr. Lauck: He would not be permitted to handle the locomotive. Wherever the locomotive might be, it might be—I am not sufficiently acquainted with the technical side of the question, but for a certain locomotive with a certain weight on drivers, it would take a man of a good high efficiency to operate that locomotive, that is it would, if it was on the New Haven Railroad. used to its tractive force and capacity.

Mr. Park: If one engineer, with the same tonnage daily, should get his train over the road on an average, we will say, of an hour quicker than another engineer during the entire month, should there not be any difference?

Mr. Lauck: Yes, he is an efficient man. He ought to be paid more. That is, I think standardization would apply to the minimum man, or the man of average efficiency. I think if you can work this thing out if you can arrive at some basis of paying according to efficiency, according to locomotive mile cost, it would be the proper thing to do. That is my personal view.

Mr. Stone: You take it for granted in that answer, that he did it legitimately. He did not do it by cutting corners and violating rules of operation in order to gain that hour?

Mr. Lauck: No, that is assumed, of course.

Mr. Nagel: If that was true, however, then it would not be

safe to accept the locomotive as the sole standard of compensation. You get the human element into it. Is not that so?

Mr. Lauck: Well, you get the human element into it, of course. One man might operate a locomotive cheaper than another. He might save his oil and his coal and his fuel.

Mr. Nagel: I understood you to answer that where one engineer properly gets his engine in an hour earlier than another engineer gets his in—gets in an engine of the same type, I understood you to say that the first engineer ought to have better compensation, and I ask you whether that does not affect the rule which you have just laid down, viz., to test the comparison by the engine operated.

Mr. Lauck: That the human element does enter in? Yes, I think so. But don't you think that the standardization applies to the average man, and then if there might want to be gradations above that, there could be?

Mr. Burgess: Mr. Lauck, don't you consider there are many reasons why a train should be delayed, other than the fault of the engineer?

Mr. Lauck: Oh, certainly, as far as I know anything about railroading. It might be held for many reasons.

Mr. Burgess: Even for a month's period of time?

Mr. Lauck: I think the better test of the efficiency of the engineer and fireman there would be—their efficiency to the railroad would probably not be so much their getting it over the road, as how economically they got over the road; how much less fuel they used; how much less oil they used, etc.

Mr. Burgess: How would you compare the productive efficiency of two engineers, on two runs, where one of them, because of grades, etc., prevented that engine from hauling more than one thousand tons, and where on the other run the easier grades permitted the same engine in the same length of time to haul two thousand tons. How would you rate the productive efficiency of those two engineers?

Mr. Lauck: I would say, in the first place, that the road that had the grades was backward; that is, it was lacking in operating efficiency or in ability to raise funds to put the road in proper condition. In the second place, I should think, taking the fewer tons, although I am not a practical railroad man, and probably should not answer the question at all, I should

think it would be just as hard to get the fewer tons over that rough road as it would to get the greater number of tons over the smooth road.

Mr. Byram: Productive efficiency would not be the determining factor there?

Mr. Lauck: The arduousness of the labor and the difficulty of getting the train over the road.

Mr. Byram: You would change the value of the man's services then, under those conditions?

Mr. Lauck: I think not. The trouble there is that you would not give a man a chance to use his services in the most efficient way; that is, it would be backwardness on the part of the operating management of the road.

Mr. Byram: Yes, but it would be a fact, though.

Mr. Lauck: It would be a fact, yes. He could not develop the productive efficiency of that engine on those grades.

Mr. Byram: You would not estimate the productive efficiency as related to the man's pay.

Mr. Lauck: Would you ever find that situation?

Mr. Byram: It is very often true that, in going in both directions, the engine takes twice as many tons this way as the other way, on account of the grades, with the same engine and the same men.

Mr. Shea: Do you think there is any railroad manager on the roads involved in this Arbitration who will admit that they retain in their employ incompetent engineers or firemen?

Mr. Lauck: I should think if they did, they would be incompetent managers to do that.

Mr. Stone: Coming back to this question of the man who handles 2,000 tons on the water level and the man who handles 500 tons over the hill with the same engine, if it should be demonstrated in the last ten years that both of them have increased the productive output or efficiency 50 per cent, there could not be any discrimination against them, could there?

Mr. Lauck: I think you would have to consider that man going both ways, that is, in his productive efficiency you would base it on the average; say the division was up hill one way, like with the Baltimore & Ohio, which I happen to be familiar with; a 17 mile grade going over the Alleghenies, is quite a heavy pull one way, but of course, they coast down the other

way. You would have to average the thing up, it seems to me. But I do not know much about the practical side of railroading and I do not like to be passing on these questions.

Mr. Park: Is it easier for the engineer to go down hill or up hill?

Mr. Lauck: I don't know.

Mr. Stone: Proceed. This next road is the Arizona & New Mexico. It is not in the list of Western roads, but I am wondering what basis they started from, to get that enormous percentage.

Mr. Lauck: Well, in 1890 they were hardly doing anything on that road; it was only 68 tons to the trainload. That road should be omitted; I have it marked out in my copy; it should not be taken into consideration; the exhibit was printed before it was known what roads would be actually in the Arbitration.

Mr. Stone: The only reason I called attention to it is that these lines look like a steam radiator instead of an analysis of tonnage.

Mr. Lauck: They had an increase of 636 per cent in the freight trainload, but when you look at the figures, you find they only add 68 tons in the trainload, and during this period they developed a very good trainload, 501 tons by 1913.

Mr. Sheean: They started out with three locomotives in 1890 and have ten locomotives in 1910?

Mr. Lauck: Yes.

Mr. Sheean: That made all these lines of percentages here?

Mr. Lauck: Yes.

Mr. Stone: They jumped from 68 tons per trainload to over 500 tons per trainload in that time.

Mr. Lauck: The operating efficiency there, comparatively, is very good. The ton mileage increased 3500 per cent, or 35 times, practically, more than it was.

Mr. Stone: Go ahead to the next one, which is a good road, where it increased almost as much.

Mr. Lauck: Referring then, to the Canadian Pacific, Canadian Lines, we find that in 1913 the ton mileage had increased 963.64 per cent as compared with 1890; that the freight train load had increased 109.34 per cent, or the ton miles per freight train mile. And they were, therefore, enabled to handle this increase in freight traffic of 963.64 per cent with 374.31 per cent

increase in freight train miles. Or, taking all traffic, of 891.88 per cent increase, it was handled with 363.87 per cent increase in revenue train miles. The fuel consumed per locomotive mile, there was the necessity of handling 101.32 per cent more fuel for each mile operated, and the productivity or increased efficiency, as shown by the output of freight engineers, increased 48.61 per cent, freight firemen, 19.42 per cent, and of all engineers 35.18 per cent and of all firemen 8.63 per cent. It would seem that the productivity of the locomotive engineers and firemen might have increased more, when the traffic considered, but it will be noted that the freight train load only increased 109.34 per cent, while the freight traffic increased 963.64 per cent.

Taking up next—

Mr. Sheean: Might I ask on that, Mr. Lauck, this takes the entire Canadian Pacific system, does it not, Canadian Lines?

Mr. Lauck: Yes, sir.

Mr. Sheean: Not merely the western lines; there is no segregation of the lines involved in this movement?

Mr. Lauck: The Canadian Lines, yes; that is all of it, I think.

Mr. Sheean: The Canadian Lines involved in this movement are the Western Lines, west of Fort William?

Mr. Lauck: Yes.

Mr. Sheean: This is the entire system?

Mr. Lauck: This is the entire system, as I recall. I do not think we could separate the figures west of Fort William; I am not absolutely certain about that, but I think that is true; I know I had it up a number of times, but I am not absolutely certain. I will answer that question tomorrow morning, if you want me to.

Mr. Sheean: Well, whatever part of the Canadian Lines it is, the tonnage that you show here, the increased number of ton miles, is the same one on which you show the increased payroll in your basic table?

Mr. Lauck: Yes, the same operating units for both.

Mr. Sheean: Just as we go along, to make sure I follow you on that, at page 38 of your basic table, on the Canadian Pacific, if I understand it correctly, the engineers on the Canadian Pacific were paid $580,564 in 1890 for moving the ton miles shown in this basic exhibit here.

Mr. Lauck: Yes.

Mr. Sheean: Then on this increased ton miles shown on your page 41 of Exhibit 21, in 1913, they were paid $4,259,933?

Mr. Lauck: Exactly.

Mr. Sheean: Now, what, statistically, is the objection, where you show the percentage increase in ton miles, to showing the percentage increase in dollars paid for hauling those ton miles?

Mr. Lauck: I think the objection would be this, Mr. Sheean, that when you consider your payroll or the operation of your plant, you do not consider the percent of increase in the payroll, but consider what the cost is to you to turn out your product. I think that that ought to be shown, and it is my intention to show later the cost of engineers and firemen per traffic unit or ton mile. For instance, if I were operating any kind of an industry, a cotton mill, say, I would not show the productive efficiency and then compare it with the payroll, if I wanted to ascertain my costs; I would compare the outlay for labor with what the labor produced.

Mr. Sheean: Well, it could be shown here what the fireman's cost per ton mile was in 1890.

Mr. Lauck: Oh, yes.

Mr. Sheean: And the fireman's cost per ton mile in 1913?

Mr. Lauck: Oh, yes. You will find it is much less in 1913 than in 1890, despite the increased payroll. That is, the increase in productivity, of course, has been attended with lower cost, otherwise there would not be any ground for claiming increased productivity, because there would not be anything to pay for.

Mr. Sheean: You treat it simply from the viewpoint of cost and not from the viewpoint of what was paid?

Mr. Lauck: Yes, I treat it not from the standpoint of how many dollars they laid out.

Mr. Sheean: But of cost accounting?

Mr. Lauck: Yes. I am looking at it from the standpoint of the railroad what it produced and what it cost them to produce it.

Mr. Stone: You show all that, in regard to the cost of engineer and fireman, per ton mile, in another exhibit later on, do you not?

Mr. Lauck: Yes, sir. I expect to bring that out later.

I believe I was about to take up the Chicago, Rock Island & Pacific. I might say that along the line of productive efficiency in the last annual report of the Chicago, Rock Island & Pacific, by President Mudge, it has a very much more elaborate presentation than I have, covering the period from 1902 to 1913. But, considering the financial difficulties of this road, it is interesting to notice the gains in productive efficiency at the same time, of the men employed by the road. Here we have an increase—

The Chairman: At what page?

Mr. Lauck: It is page 44. We have an increase in the number of ton miles or freight traffic handled of 302.15 per cent during this period; an increase in the freight train load or ton miles per freight train mile, of 106.29 per cent; and consequently we find the increase of 302 per cent in freight traffic handled by an increase of only 73.27 per cent freight train miles, which results in an increase of pressure of work on the fireman of 165.37 per cent more fuel consumed per locomotive mile.

From the statistics available, I was not able to work out the percentage of engineers and firemen; that is, there were some imperfections in the reports reporting the costs of engineers and firemen in this past period, but you have the indications there in the way of great increase in freight traffic handled by fewer train miles, 73 per cent and 302 per cent compared, and in the increase of the train load of 106 per cent and an increase in fuel consumption per locomotive mile of 165 per cent.

Mr. Sheean: I do not quite follow you, as to why you omitted from this table the three items that are shown on each of the three preceding ones.

Mr. Lauck: I do not think I was able to get the outlay for engineers and firemen in 1890 or in any approximate year. I think for some reason they did not report them. We encountered that difficulty in the case of a number of roads. I am not certain as to that, but I think that was the reason it was omitted, and the only reason—it is given in 1890. I do not know why we did not work that out.

Mr. Sheean: Yes.

Mr. Lauck: Page 38 of the basic tables. I do not know

whether that was a typographical error or why we did not work it out. I see no reason now why we did not. I just judged that it was like some other roads, that we had omitted it on that ground.

Mr. Burgess: Well, it can be worked out, if necessary.

Mr. Lauck: It can be worked out, yes.

Mr. Stone: There is no reason for the omission, that you know of?

Mr. Lauck: No, not that I know of. I then take up next the Chicago, St. Paul, Minneapolis & Omaha. During this period we have, in 1913, as compared with 1890, an increase of 169.19 per cent in freight traffic, and 179.42 per cent in total traffic. The freight train load or ton miles, per freight train mile increased 75.80 per cent, consequently it was possible to handle the increase in freight traffic, of 169 per cent, with an increase of only 45.87 per cent in train miles. And the total traffic of 179.42 per cent increase with 71.81 per cent revenue train miles. The fuel consumed per locomotive mile, or handled by the fireman for each mile operated by the locomotive, was 86.66 per cent more in 1913 than in 1890. The productive efficiency, as measured in ton miles, of freight engineers increased 22.35 per cent and the freight firemen 17.23 per cent; of all engineers, as measured in traffic units, the increase was 9.33 per cent, and of firemen only 4.76 per cent.

I will take up next page 50, the Denver & Rio Grande, which has been going through a rather unusual development of operating efficiency.

In the case of this road, in 1913, the freight traffic was 441.71 per cent more than in 1890. The volume of all traffic, as measured by traffic units, was 417.92 per cent more in 1913 than in 1890. The freight train load, or the ton miles per freight train mile increased during the period 1890 to 1913 140.16 per cent. It was, therefore, possible, to handle the increased freight traffic of over 400 per cent with an increase of only 145 per cent in freight train miles, or, the total traffic, which increased 417 per cent, with an increase of only 140 per cent in revenue train miles. The information as to fuel consumed per locomotive mile is not available, but the productive efficiency of freight engineers for each $1,000 outlay in 1913 was 94.24 per cent more than in 1890; of freight firemen, 79.24 per cent more; of all engineers it

was 87.36 per cent more in 1913 than in 1890, and for all firemen, 72.89 per cent more.

I will call your attention next to page 53, the Duluth, South Shore & Atlantic Railway. There, we have an increase of freight traffic of 127.34 per cent, and of all traffic of 130.40 per cent during the period under consideration. The freight train load during the same period increased 116.81 per cent, therefore, the increased freight traffic of 127 per cent was handled by an increase of only 14 per cent in freight train miles. The fuel consumed per locomotive mile, or the amount of fuel handled for each mile operated by the locomotive increased 90.16 per cent. The productive efficiency of freight engineers, as measured by $1,000 compensation, in 1890 and 1913, was 32.89 per cent more in 1913 than in 1890 and of freight firemen was 26.11 per cent more. All engineers showed an increased productive efficiency of 21.55 per cent and of firemen 15.35 per cent more in 1913 than in 1890.

The next road for which I have a diagram is found on page 56.

Mr. Burgess: Pardon me a minute, but this Duluth, South Shore & Atlantic, notwithstanding that increased productive efficiency, showed a decrease in locomotives?

Mr. Lauck: Yes. Of course, that is plainly indicative of the fact that the power per locomotive increased; that is, they had more traffic and they handled it with fewer locomotives than they did before. We were unable to get figures as to the increased tractive power of locomotives until 1902. Later on, in the later period from 1902 to 1913, we can show the increased tractive power of locomotives. For this period we are unable to show it, but that decrease indicates that the tractive power of each locomotive was greater, of course, in 1913 than in 1890. Of course, that is obviously true, or the road was so improved that the old locomotives could haul more, which we know is not true of the road, I think.

Mr. Burgess: While they had 8.49 per cent less locomotives in 1913, there was an increase of 127.34 per cent in the number of ton miles?

Mr. Lauck: Yes, which was handled by 8.49 per cent decrease in locomotives.

Mr. Burgess: That is the only road that shows a decrease in locomotives, is it not?

Mr. Lauck: That is the only one I recall. There are a considerable number of decreases of coal consumed, due to the installation of oil burners and other power. Of course, the object of putting in the number of locomotives at this point is to endeavor to show that the number of locomotives increased less than the traffic, in order to get a light on the increased tractive power of locomotives. This figure for the number of locomotives is all locomotives in service, whether owned or leased, but all that were used in operating the traffic.

Mr. Sheean: In service or on hand?

Mr. Lauck: In service.

Mr. Sheean: Counting only those actually in service on any particular date, or do they enumerate them as an asset, of what they own?

Mr. Lauck: The railroads report to the Interstate Commerce Commission the number of locomotives in service, and this is the figure.

Mr. Sheean: That may mean available or fit for service, and any that have not passed out and onto the scrap heap.

Mr. Lauck: Yes. Of course, I do not know what the practice of the railroads is in that way. Sometimes a railroad, rather than charge up salvage and increase its operating ratio, will hold the locomotive off before it scraps it; I remember in the case of the Frisco and the Rock Island, to keep down their operating expenses, they discarded locomotives on a side track and left them there, because they did not want to increase their operating ratio; but I think that this figure surely must mean all locomotives actively in service. Of course, if it meant more than that, it would be to our disadvantage, anyhow, because we are comparing the number.

Mr. Stone: This is the only road so far, Mr. Lauck, that shows a decrease in the total train miles, as well?

Mr. Lauck: I had not noticed that.

Mr. Stone: On page 55 of your table, on this first line in the second section, I noticed a decrease of 26,000 miles in the total train miles, and yet it shows—

Mr. Lauck: What page is that, Mr. Stone?

Mr. Stone: 55.

Mr. Sheean: If you will pardon me a moment, just to clear up that last point I was on, Mr. Stone.

Mr. Stone: Surely.

Mr. Sheean: As we go along, because I think we will not disagree.

My understanding, Mr. Lauck, was that what they showed was equipment alone, and that the instructions required them to report the equipment which they had.

Mr. Lauck: The figures take the total number of locomotives owned or leased, total locomotives in service. Then, they have leased locomotives. Total locomotives owned. This was my figure, total locomotives in service.

Mr. Sheean: The instructions that accompany it, call for a classified statement of all the train equipment of the company?

Mr. Stone: Either way is acceptable to us. It is in our favor if you want to take it the other way.

Mr. Sheean: I was not debating in whose favor it was, but simply trying to make it clear, if we could, just what the equipment was.

Mr. Lauck: That is the figure. I have taken the total locomotives in service, including leased locomotives.

Mr. Sheean: Total locomotives in service are comprised of the two items, all locomotives owned and all locomotives leased.

Mr. Lauck: Exactly, yes.

Mr. Sheean: If a locomotive is owned it is, under your interpretation, in service?

Mr. Lauck: Yes, in service. Of course, the effect would be, as Mr. Stone says, if you have those out on the side tracks, waiting to put them on the scrap heap, and charge the salvage into operating expenses,—if we knew what locomotives were out there, we could show probably a smaller increase in the number of locomotives.

Mr. Sheean: That is assuming that you had a count at the two dates you have taken?

Mr. Lauck: That I do not think would amount to much. It would be only in the case of a road that was bad off financially.

I think the next road I have not mentioned is on page 56. That is the Ft. Worth & Denver City Railway. In the case of

this railroad we find an increase in freight traffic of 399 per cent in 1913 as compared with 1890, and an increase in all traffic of 375 per cent. It is seen also that the average freight train load on this road increased 290 per cent during this period. It was therefore possible to handle the large increase in freight traffic of 400 per cent, in round numbers, by an increase of only 26 per cent in freight train mileage, and the total traffic increase of 375 per cent, with an increase of only 52 per cent in total revenue train miles. This resulted in increased output for the locomotive engineers and firemen, in terms of ton miles, for each $1,000 invested, of 172 per cent in 1913, as compared with 1890, and for firemen, freight firemen, 151 per cent in 1913 as compared with 1890.

For all traffic, the productivity of engineers as measured by traffic units increased 117 per cent, and of firemen, in round numbers, 100 per cent.

The next road appears on page 59. It is the Gulf, Colorado & Santa Fe, a subsidiary of the Atchison.

Here we have an increase in freight traffic in 1913, as compared with 1890, of 430 per cent; of all traffic of 416 per cent. The freight train load during the same period increased 237 per cent. It was therefore possible to handle this large increase of 430 per cent in freight traffic with an increase of only 52 per cent in freight miles, or to handle an increase of 416 per cent in all traffic with an increase of 81 per cent in revenue train miles.

This resulted in the necessity of the firemen handling the 103 per cent increase in fuel for each locomotive mile operated, and also shows an increase in productiveness or output for each $1,000 investment, of 148 per cent more in 1913 than in 1890, for freight engineers, and 125 per cent more in 1913 than in 1890, for freight firemen.

Mr. Sheean: All that fuel was oil, was it not?

Mr. Lauck: Yes, by reference to the basic tables you will find that the notes there show the percentage of oil consumption.

Mr. Stone: It was not all oil in 1890, though, was it? They did not strike oil down in Texas until some time after 1900.

Mr. Lauck: There were no oil burners reported in 1890, but in 1913 there was only one coal burning locomotive on this road.

Mr. Sheean: How are you comparing, then? In the two

years, on the question as asked a little while ago, of the work of the firemen, in the two periods on that road?

Mr. Lauck: Why, someone would have to testify to that who knew something about the oil burning locomotives. That is, the method of the Interstate Commerce Commission is to change into terms of fuel, as you know, oil or gasoline. I think that the method varies. They let the road base it on their own experience. They get this figure then as to fuel consumption. Of course, that brings out the question you have raised of whether the arduousness of the work is increased by the use of oil as compared with coal, and seemingly on the face of it, it would not seem so, but I know nothing about oil burning locomotives except what I have heard, that they are exceedingly dangerous to operate. That is all I know about it. It is just merely hearsay, anyhow.

I find that true in a number of roads, and the notes are always given as to the oil burning locomotives.

Mr. Burgess: But, in arriving at these figures, you found that same practice, as if coal was used on that road? Is that the idea?

Mr. Lauck: Yes. I used the term "fuel," and of course where there were a number of oil burners used, as I understand it, it would not be the arduous physical labor of shoveling coal, but the other compensating factors some one with practical operating experience would have to testify to. I would not be competent to know anything about that.

Mr. Burgess: But I understood Mr. Sheean's question was how you arrive at that figure.

Mr. Lauck: I took that figure as they reported it to the Interstate Commerce Commission. The Gulf, Colorado & Santa Fe reported that figure.

Mr. Sheean: As to the comparison, was all that I wanted.

Mr. Lauck: Yes, it was oil in 1913 and coal in 1890.

Mr. Sheean: Some deduction you made from your tables was that the productive efficiency was brought about by the increased arduousness of the labor?

Mr. Lauck: Yes.

Mr. Sheean: Now, whether there was any such deduction made in the case of this table or not, Mr. Lauck, was all.

Mr. Lauck: It may be made in the text. I say in the text

that it has been necessary for each fireman to handle an increase of 103 per cent in fuel for each locomotive mile traveled. So far as the arduousness of the labor is concerned, I don't know anything about it. I don't know anything about an oil burning locomotive.

Mr. Stone: You are perfectly willing to leave that to the testimony of the witnesses who will testify to it?

Mr. Lauck: Yes. I thought the men would cover that, the men who are acquainted with operating conditions. Does that cover your point, Mr. Sheean?

Mr. Sheean: Yes. The comparison I thought, on page 60, might possibly—"Especially with the number of engineers and firemen, owing to their inability to stand greater physical strains and responsibilities of the development of the railroad in operating performance." That is the note pertaining to this table, and I was wondering if in the table here you wanted the deduction to be made that, in 103 per cent of the heat units produced by turning an oil spigot, the labor was more arduous than in shoveling the heat equivalents in coal?

Mr. Lauck: No, I would not want to make that deduction. I would leave that to somebody else who knew something about it.

Mr. Sheean: I am simply calling your attention to that being in the text.

Mr. Lauck: That grows out of the mechanical preparation of the text being in a hurry.

Mr. Stone: You don't know whether that is all that is involved in firing an engine with oil, just merely turning a spigot, as has been written in the record several times already, or not?

Mr. Lauck: I don't know. I have heard they are very dangerous if you get on a side track, etc., but I don't know anything about it.

The next road is the International & Great Northern on page 62.

In the case of this road, we have an increase of 261½ per cent in ton traffic in 1913 as compared with 1890, and of all traffic, of 260 per cent. The freight train load during the same period increased 113 per cent. It was therefore possible to handle the 261 per cent increase in freight train traffic with an increase of only 58 per cent in revenue freight train miles. The

coal consumption decreased; the fuel consumed per locomotive mile increased 118 per cent. The productive efficiency of freight engineers increased 66.83 per cent. And of freight firemen 63.52 per cent.

And of all engineers, considered on a $1,000 outlay, in terms of traffic units, secured an increase of 53 per cent to all engineers, as a class, and of 50 per cent to all firemen, whether in freight or passenger traffic.

There were oil burners used by this road in 1909. I do not find any record in 1913. That may account for the decreased use of coal.

I will next ask your attention to page 65, the case of the Soo Line. We have an increase, another remarkable increase in freight traffic of 1,344 per cent, and of all traffic of 1,390 per cent, during the period 1890 to 1913.

The freight train load or ton miles per freight train mile, or revenue freight tonnage, increased 125 per cent during the same period, therefore this remarkable increase in freight traffic of over 1,300 per cent was handled with an increase of 583 per cent in freight train miles.

The coal consumption increased 1,114 per cent, in terms of tons, and in terms of fuel consumed per locomotive mile, or the amount of fuel handled for each mile operated by a locomotive, was 62.81 per cent.

The productivity or increased output, in terms of ton miles, of freight engineers, was 31.76 per cent, of freight firemen 29.18 per cent. Of all engineers, without regard to the class of service, the increased productivity, in terms of traffic units, was 16.01 per cent, and of firemen, 13.73 per cent.

Mr. Stone: In speaking of all engineers, you mean—

Mr. Lauck: All classes of engineers.

Mr. Stone: Isn't it a fact that a great deal of this construction work, in fact isn't all of it charged to maintenance of way, and is not shown in this account at all?

Mr. Lauck: No, the engineers engaged in maintenance of way work would be charged in this account.

Mr. Stone: They would be?

Mr. Lauck: Yes, but in the case of new construction, there have been a number of cases where the rule has been violated. For instance, the recent disclosures on the St. Paul, where they

charged construction work to operating expenses, and vice versa; but the construction engineers are supposed to be charged to capital account, as I understand the requirements of the Commission. This would include all engineers employed by that road.

Mr. Park: Work train service, construction service, switch service, passenger and freight?

Mr. Lauck: Any kind of service. This figure of $1,000 represents the total outlay of the road for engineers. It is the figure they report to the Interstate Commerce Commission. If you have the form there—it is page 93, I think. The railroads in reporting to the Interstate Commerce Commission, make a distribution of their labor cost between the principal classes of employees, as to engineers, firemen, trainmen, officers, and then they give the total labor cost.

Mr. Stone: It is page 91.

Mr. Lauck: Here is the point, Mr. Stone: In the column referred to, where engineers are given, as determined from the payrolls at the end of the year, for which this report is made, it is not intended, however, that laborers—which of course would mean engineers engaged in construction of new lines—should be reported among railroad employees. So, strictly speaking, the construction work would not be in this. The maintenance of way would be in it. Of course, there have been numerous violations of this. As I mentioned, in the case of the St. Paul—

Mr. Park: It is hard to distinguish, at times, as between construction and maintenance of way.

Mr. Lauck: Yes, it is hard. I think, as a rule, it does not include construction work, but it does include maintenance.

I will omit the pages from 67 through 70, inclusive, as those roads are not included in the present proceedings but were included here because the exhibit was prepared before the list of roads was agreed upon.

Referring to page 71, we have the Missouri, Kansas & Texas Railway. In the case of this railroad we have an increase in 1913 of 229 per cent in freight traffic, as compared with 1890, and an increase of all traffic of 259 per cent during the same period. The freight train load exhibits a remarkable increase during this period, due of course to the poor operating efficiency of the road in 1890. In 1890 the freight train load on the Mis-

souri, Kansas & Texas was only 44 tons, which was increased—not such an enormous figure—in 1913, to 243 tons, and shows an increase of 452 per cent during this period. It was therefore, by this increase of 452 per cent in the average freight train load that they were enabled to handle this increase of freight traffic of 229 per cent, with 62 per cent increase in freight train miles.

The coal consumption increased 314 per cent. The fuel consumed per locomotive mile increased 75.83 per cent.

The output for each $1,000 compensation for freight engineers was 56 per cent more in 1913 than in 1890, and for freight firemen was 45 per cent more in 1913 than in 1890. Considering it on a traffic unit basis, the productivity of the engineers increased only 8.59 per cent, while the firemen increased less than one-half of one per cent, showing a small degree of productive efficiency, when compared on the total traffic unit basis. When compared on the freight basis alone, it shows an increase of 45 per cent, and 56 per cent.

Mr. Sheean: I do not quite follow you on the way you get those ton miles. That is shown on page 73, isn't it?

Mr. Lauck: Yes, sir. The supporting table for the Missouri, Kansas & Texas is on page 73.

Mr. Sheean: Shown as 44 in 1890. That is obtained by dividing—

Mr. Lauck: The 243 into the 44.

Mr. Sheean: I mean in arriving at the 44, you have ton miles, the second item, 555,000,000, in 1890?

Mr. Lauck: What page is that?

Mr. Sheean: On the same page, 73.

Mr. Lauck: The ton miles, yes.

Mr. Sheean: Ton miles, 555,000,000; freight train miles, 4,000,000. I don't quite see how you get the 44 there.

Mr. Lauck: The 44 was ton miles per freight train mile. On down in the statement.

Mr. Sheean: But you have above there a total ton miles of 555,000,000, and a total freight train miles of 4,000,000. Would not the ton miles per freight train mile be arrived at by dividing the total ton miles by the freight train miles?

Mr. Lauck: Yes, the total average tonnage by the total revenue train mileage, but I did not make that division. If

there is any mistake there it is made by the railroad in reporting to the Interstate Commerce Commission. The ton miles per freight train mile is reported direct by the railroad and requires no computation on my part to arrive at it. That is given in the traffic statistics.

Mr. Sheean: There would seem to be some discrepancy between the two figures.

Mr. Lauck: It would seem to be more in 1890, according to the figures there. I never have worked that out. I took it just as they reported it.

I will call your attention next to page 74, the Missouri Pacific Railway. In the case of this road we have an increase of 178 per cent in freight traffic during the period under consideration, and 167 per cent on all traffic. The freight train load increased 98 per cent. Therefore, it was possible to handle the increased freight traffic of 178 per cent with an increase of only 50 per cent in train mileage, and a total increase in traffic of 167 per cent with an increase of only 56 per cent in revenue train miles, as a whole.

The fuel consumed per locomotive mile increased 88 per cent. The total coal consumed, in terms of tons, increased 247 per cent.

The productive efficiency of freight engineers, as measured by ton mileage, was 31 per cent more in 1913 than in 1890, and of freight firemen, 23.96 per cent more in 1913 than in 1890. As measured by traffic units, the productive efficiency of all engineers increased 11.97 per cent, and of all firemen, 5.52 per cent.

Referring to page 77—

Mr. Stone: Why do you show the St. Louis, Iron Mountain & Southern separate from the Missouri Pacific System—are the reports separate and distinct?

Mr. Lauck: They make separate reports. They do not make a system report. They make a report of the separate operating units. That is the case with a great many subsidiaries. Some roads make a system report, some make a part system and part subsidiary, and some make a separate report for the railroad proper and each subsidiary makes a separate report.

In the case of the St. Louis, Iron Mountain & Southern

on page 77, we have an increase in freight traffic during these 24 years of 401 per cent; of all traffic, 382 per cent. An increase in the train load during the same period of 141 per cent. Therefore, a movement of this increase of 401 per cent in freight trains with an increase of only 95 per cent in freight train mileage.

The coal consumed, in terms of tons, increased 417 per cent. The fuel consumed, per locomotive mile, increased 126 per cent.

The productivity of engineers, freight engineers, in terms of ton miles, was 71 per cent greater in 1913 than in 1890, and of freight firemen, 58 per cent greater in the latter year than in the former. Measured in terms of traffic units, for all classes of engineers and firemen, we have an increased productive efficiency for engineers of 42 per cent, and firemen of 31 per cent.

The next road is on page 80. It is the Texas & Pacific. In the case of this road freight traffic was 215 per cent greater in 1913 than in 1890, and all traffic was 211 per cent greater. The train load increased during this period 85 per cent. It was therefore possible to handle the 215 per cent increase in freight traffic with an increase of only 68 per cent in freight train mileage. This was accompanied, however, by an increased coal consumption of 256 per cent, and of fuel consumed per locomotive mile, 77 per cent more in 1913 than in 1890.

The productive efficiency of freight engineers, as measured in ton miles, was 26 per cent more in 1913 than in 1890, and of freight firemen, 17 per cent. For all engineers and all firemen, as measured in terms of traffic units, the increased output for engineers was 10.29 per cent, and for firemen 2.28 per cent.

The concluding road in this exhibit is the Wabash.

Mr. Stone: In regard to the Wabash, does the Wabash make any separation between the Wabash that is in Canada and the Wabash that is in the States? The line east of Detroit, is that separate and distinct, or is that included in this report?

Mr. Lauck: I have forgotten the division point west,—I mean the difference between the Canadian and the American lines.

Mr. Stone: Detroit.

Mr. Lauck: I think this is the Wabash Western, proper.

Referring to the Wabash then, we have an increase in freight traffic of 160 per cent in 1913 as compared with 1890, and an increase in all traffic of 158 per cent. An increase in the freight train load of 101 per cent during this period, and a consequent ability to handle the 160 per cent increase in freight traffic with an increase of only 27 per cent in freight train miles. Of all traffic, with 158 per cent increase, with only 42 per cent increase in revenue train mileage.

The total coal consumption increased 234 per cent during the period.

The productivity of freight engineers increased, in terms of ton miles, in 1913 as compared with 1890, 28.91 per cent, and freight firemen, 23.14 per cent; and all engineers increased their productive efficiency 15.72 per cent, and all firemen 10.54 per cent.

Mr. Stone: That finishes that exhibit?

Mr. Lauck: That finishes this period, as the remaining roads are not in the movement that are included in the exhibit.

Mr. Nagel: In making your calculations you accept the wage of 1890 as the basis, do you not?

Mr. Lauck: Yes, sir.

Mr. Nagel: Do you admit or contend that that wage represented a proper proportion of the productiveness of the system at that time?

Mr. Lauck: I should think we would have to do that in order to make a comparison, although I had not considered it one way or the other, whether it had or not.

Mr. Nagel: You must accept that as a basis to calculate the value of improvements or any increases since then?

Mr. Lauck: Yes.

Mr. Nagel: And in considering the increases in wages since then, have you also had regard for other concessions made in the meantime, as a result of settlements which may not be expressed in figures?

Mr. Lauck: Personally I have not. No, sir, I don't know anything about that. I have taken, as you will see, the outlay in 1890 and compared it with the outlay in 1913, and then compared each of those outlays with the output of the industry, to see what the terms of the output was, for each dollar of labor cost, for locomotive engineers and firemen.

Mr. Park: Was 1890 the first year for which the statistics of the Interstate Commerce Commission were available?

Mr. Lauck: No, I think the statistics were first available for 1887 or 1888.

Mr. Stone: You stated, Mr. Lauck, I believe, in reply to a question of Mr. Nagel, that you accepted 1890 as a fair basis of pay. As to these other periods of 1900 and 1913, in the comparisons you draw, do you accept the same basis again, that either one of these bases is the right one?

Mr. Lauck: No. I do this; I accept that outlay in 1890, in terms of all engineers and all firemen. It is not rates of pay; it is a labor cost to the railroad for engineers and firemen. I accept the 1900 and the 1909 in the same way. So far as the rates of pay is concerned, or working conditions, or relations, I know nothing about them.

Mr. Stone: Do you want to ask any questions on this exhibit now or take up the other period?

Mr. Sheean: I think I had rather on the cross-examination cover it all, if you do not object to my occasionally asking him a question.

Mr. Stone: Not at all.

Mr. Sheean: I want to say that where any of it has seemed to be cross-examination, it has been brought about by the discussion which has ensued. I originally intended it only as asking for information.

Mr. Lauck: I am glad you interrupted. It is sort of monotonous going from road to road. I think we have a chart on the next one, Mr. Stone. The next is Exhibit 22.

The Chairman: Does this relate to document No. 22?

Mr. Stone: Yes, sir.

Mr. Lauck: It is entitled Exhibit No. 22, "Increased Work and Productive Efficiency of Locomotive Engineers and Firemen," for the period 1900-1913.

Substitute the year 1900 for the basis of comparison instead of 1890.

Mr. Stone: I understand this list of roads on pages 1 and 2 are the 48 representative roads that you show the graphic chart of on page 3?

Mr. Lauck: I made a mistake, Mr. Stone: This chart refers to the 40 roads which appear on 5 and 7.

Mr. Stone: Pages 5 and 7?

Mr. Lauck: Yes. We could just omit the 48 roads and go to the 40 roads. I would ask the Board, therefore, to turn to page 5 in this new exhibit number 22. We have there the results for 40 Western railroads considered as one system. Among these 40 railroads are several roads that are not included in the present movement, due to the same reasons that I have already stated, that the statistics and the totals were prepared before we knew exactly what roads were involved. Those roads, however, are not of great importance and do not affect the results in any way. They are the Arizona & New Mexico; Colorado Midland; Duluth, Missabe & Northern; Minneapolis & St. Paul; Wabash, Chester & Western; and the Wisconsin & Michigan, all of which are comparatively unimportant roads. Referring then to the diagram, which is the same as the diagram on page 7 of the exhibit, I am able at this point to introduce a new bar. That is the combined tractive power of all locomotives in terms of pounds. This figure was first reported to the Interstate Commerce Commission by the railroads in 1902, and as a consequence, in order to make the comparison more available, I have taken this figure here "combined tractive power of all locomotives for 1902" and included it in the 1900 compilation.

Then, according to this diagram showing the operating results for the thirteen years ending with June 30th, 1913, we have an increase in ton mileage by these 40 roads considered as one system of 159 per cent, or an increase in all traffic of 162 per cent. During this same period the freight train load or the ton miles per revenue freight train mile increased 67 per cent. The tractive power of locomotives increased 170 per cent. Therefore, it was possible to handle this increase of 169 per cent in freight traffic or ton mileage with an increase of only 54 per cent in freight train miles. The coal consumed in doing this increased 154 per cent, and the productive efficiency of freight engineers in terms of ton miles was 18 per cent more in 1913 than in 1900, and of freight firemen 14 per cent more in 1913 than in 1900.

The method employed is identical with the previous exhibit. The presentation is identical and the same, except there is introduced at this point "the combined tractive power of all locomotives," a figure that was not before available.

On page 10 of this same exhibit we have—

Mr. Sheean: On this one page here you carry it down to the increase of freight enginemen and freight firemen, but there does not seem to be on that exhibit the increased productivity on traffic as a whole.

Mr. Lauck: I do not carry the traffic units after this first exhibit.

Mr. Sheean: Do they, as a matter of fact, if carried over the whole service—

Mr. Lauck: Beg pardon?

Mr. Sheean: If they are spread over the entire traffic, as they were in this first case, does the increased productivity disappear?

Mr. Lauck: I would not be able to speak offhand, but I think proportionately it is much less.

Mr. Sheean: Have you ascertained whether or not it has come to the vanishing point at any place here?

Mr. Lauck: No, I have not, except in a few roads in 1909 to 1913, and then I think it would be practically nothing.

Mr. Sheean: Well, you don't carry anywhere through the table, then, the increased productive efficiency on traffic, as a whole, on this road?

Mr. Lauck: No.

Mr. Sheean: So that if your distribution of the freight is inherently unsound, then there is no line here in this particular exhibit by which you can judge of the traffic as a whole. If your segregation of freight firemen from passenger firemen is—

Mr. Lauck: If that is inherently unsound, no.

Mr. Sheean: There would be no way, on this exhibit, by which you could have a comparison, assuming that there is no practical way of dividing the freight from the passenger units?

Mr. Lauck: Yes. Well, of course, you could still use the traffic unit, if that was shown to be inherently unsound.

Mr. Sheean: You have not actually done that in this exhibit?

Mr. Lauck: No, I have not in this exhibit. I did not carry that in the two later exhibits. I originally used numbers, and then I decided to discard numbers, and then in the hurry of getting the thing in shape, I worked out the ton mileage and part of the traffic unit mileage. I really do not like the traffic

unit as I have used it, because I do not think it is fair to us. I believe there ought to be more traffic units as equivalent to one ton mile. I think it gives every advantage to the other side of the argument. But there is no means of determining accurately what it is.

Mr. Stone: Even though your basis might be unsound, Mr. Lauck, the fact still stands out in all of them that there has been a remarkable increase in the ton miles, and a very much smaller per cent increase in the train mile?

Mr. Lauck: Why, I think, if you would show that—taking the comparison 1890 to 1913, and if you would eliminate ton mileage, traffic units, or any other basis of attempt to show this tendency, it would still be perfectly obvious from the other parts of the chart the remarkable increase in the freight train unit. The ability to handle such a large increase in freight traffic or total traffic or freight traffic with such a large increase in freight train miles, it seems to me, it is a self-evident proposition, unless that had been attended with an enormous increase in the number of railway employes, which everyone knows to be untrue. That is, the number of railroad employes has decreased, I think, in actual numbers. I may be wrong about that.

Mr. Burgess: That is, you mean "per train," is that right?

Mr. Lauck: Well, the number of employes as compared with the traffic has not increased as much as the traffic. The number of men employed has not kept pace with the traffic development. Of course, the whole object of the conducting of a railroad is to get the increased train load. As many ton miles over the road, with as few train miles as possible, and these lower bars—if I may designate them as that—the lower efforts here to show increased productive efficiency in terms of ton mileage or traffic units, even if they are entirely discarded, I would still hold, that the upper part of the chart is demonstrating our proposition. Those are just attempts to show tendency under the conditions under which we have to work.

Mr. Sheean: That is, to the extent of indicating the trains are bigger and the trains are longer?

Mr. Lauck: And heavier.

Mr. Sheean: And heavier?

Mr. Lauck: Yes.

Mr. Sheean: But to what extent, within the absence of these others or what per cent of increase there has been, you would not reach any conclusion but only the general one that there is bigger power, bigger trains and heavier tonnage?

Mr. Lauck: Yes, and these are simply indicative of the same thing, as I have stated before. I do not swear to them as being accurate, only as far as indicating a general tendency, that is all.

Mr. Stone: They would show, would they not, that you are handling 159 per cent more ton miles, with an increase of only 54 per cent in train miles? You can strike out all the rest of them and it will still show that, will it not?

Mr. Lauck: Yes, freight train miles, you mean.

Mr. Stone: Yes.

Mr. Lauck: Yes, the productive efficiency of the railroad, as a plan, itself, is perfectly evident, I think, and of each train load is perfectly evident. The difficulty comes in relating it to the employe, the individual employe. Then we have not the data to do it to a mathematical nicety or approximately.

Mr. Sheean: But the fact that the payroll may have gone from $24,000,000 to $54,000,000 on these same lines, you think has no significance in that connection?

Mr. Lauck: I think it has a very profound significance from the standpoint of operating the railroad, but from the standpoint of the point I am making I do not think it is the significant thing unless it should be related to the unit of output. That is, it should be related to the ton mile or some traffic unit, so that you would know what it would be costing you. You sell ton miles, do you not? The railroad sells ton miles or passenger miles? Well, then, the payroll is significant in its bearing upon what it cost you to produce in terms of labor ton miles or passenger miles, from the operating standpoint. The whole effort of the development of the train load and the development of operating efficiency is to reduce the cost per ton mile. That is why you put the weight on the train. That is why you put your capital in the road, to get the heavier locomotive. If your labor cost per unit of what you sell is less, and the labor is worth more and produces more, it seems to me that is the significant thing in that connection, if those things are true.

Mr. Sheean: In that connection, Mr. Lauck, I wonder if your deduction was sound, that the passenger mileage—the passenger miles, productive efficiency in that respect has been growing less and less as your chart would seem to indicate? Whether or not there should be some consequent reduction in the pay of the men because of their decreasing efficiency in that branch of service, and compensation in the one in which they are getting more efficient?

Mr. Lauck: That brings up the question, of course, as to the passenger traffic, and whether other things are not affecting the traffic, or the increase in the cost of the traffic. You would not go into the cost of traffic now. You are speaking of the output.

Mr. Sheean: I am taking your same basis, the unit you say is sold, the passenger mile.

Mr. Lauck: I think that I agree—I should not say that, but my opinion is the same as President Ripley of the Santa Fe. I think that in his annual report the last time he said there were too many passenger trains, too much cost of operating; that there ought to be combination and co-operation and elimination, and this thing of six trains leaving here at night for Kansas City, or two trains pulling out at the same hour for New York, I think there is where your decrease in productive efficiency is. I think it is bad management of passenger traffic, growing out of competition for passenger business. That is, if you start two trains from here to Kansas City, where one could do the work. And evidently we only ought to have one train. Let us use that as an illustration.

Mr. Sheean: And one less passenger engineer.

Mr. Lauck: Yes. Then you will have the same productive efficiency as you would in freight traffic.

Mr. Shea: Well, Mr. Lauck, now speaking about that, how are you going to handle the traffic at intermediate stations on either of these roads if you don't run these trains?

Mr. Lauck: Of course this train would make these stops. The idea was for the competition for Trans-Continental business or business between Chicago and Kansas City.

Mr. Shea: You are speaking of these two points, Chicago and Kansas City, but how are you going to handle traffic from

intermediate stations on other parts of the road if they don't have these trains?

Mr. Lauck: Those runs productively are efficient, I should think. That is, they are preferable to operate. Of course, this is all speaking offhand. The point that I brought out was that the decreased productive efficiency of the engineer on passenger traffic, if it exists, which I am inclined to think it does in this way, is due to bad—not bad, but it is due to the conditions of operating management, growing out of the competition of passenger traffic, the multiplication of unnecessary trains. If the railroad system were federated, like the Federal Reserve Bank System, we would have an increasing productive efficiency. I do not think the engineer is responsible for it.

Mr. Sheean: In your idea that there is the decreasing productive efficiency in passenger service and increased productive efficiency in the freight service, would the reduction of the passenger miles, there, by taking off some of the surplus labor that you have there and distributing that to the more productively efficient part—the freight service,—meet the situation?

Mr. Lauck: Well, I don't know whether it would or not. It would surely—I would be perfectly willing to accept a decreasing per cent of productive efficiency in freight service, yes.

Mr. Sheean: That is, a reduction of the number of men, the number of miles, the passenger miles that are made, train miles?

Mr. Lauck: That is what I think should be done. It seems to me, just from what I have heard of the conditions that exist and what was brought forward in the decision of the Interstate Commerce Commission in the recent Freight Rate case, Eastern Five Per Cent Rate case. But I would hold that that was a condition over which the engineer had no control. That is, if through competition between railroads, which is necessary, which I think must be maintained, the engineer is compelled to run an empty passenger train, I do not think we ought to hold him responsible for that for lack of productive efficiency. That is, if there are two competing trains and only business enough for one train, and a road persists in running a train and gets no passengers, or gets a very small proportion of passengers, it seems to me the necessity is there for co-operation or combination, and not to reduce the engineer's wages.

Mr. Sheean: No, but to reduce the number of engineers.

Mr. Lauck: Reduce the number of trains, yes, or transfer the engineers to some more efficient service.

Mr. Stone: Well, is it not a fact, Mr. Lauck, that these roads do do that? For instance, the Burlington just laid off two of their trains, Numbers 9 and 10. Is it not a fact that in times of depression they do pull these runs off?

Mr. Lauck: Oh, yes, when business is falling off, but even in normal times this condition obtains which Mr. Shea spoke of, of a needless duplication of passenger trains.

Mr. Stone: All right. Is it not also a fact, that the operating officials are between the devil and the deep sea in regard to operating their passenger trains? For example, take the case you speak of, of six trains leaving here tonight for Kansas City on these six different lines. If those six different managers got together and agree to run one train, the chances are they would put the other five in jail for conspiracy in restraint of trade—something along that line?

Mr. Lauck: Yes, that would be true, but I think that is wrong myself. I think they ought to be permitted to combine.

Mr. Nagel: You still think that would be cheaper than the other course?

Mr. Lauck: Yes.

Mr. Stone: You think they ought to put all six in?

Mr. Lauck: No, I am an admirer of the operating manager. It is the financial man I do not have any admiration for. I don't think, Mr. Stone, not to reiterate, but so I will not be misunderstood, I do not think the engineer ought to be held responsible for that condition, if his productive efficiency decreases. He cannot help it, if he is hauling as many cars as before, if they do not get as many passengers in the cars.

Mr. Sheean: I did not intend to get into any discussion, but simply on this one to ascertain whether you do show anywhere in this exhibit what the actual result has been on decreasing efficiency.

Mr. Lauck: No, I do not.

Mr. Sheean: I would like to ask one more question. Assuming that during this same period there has been 100 per cent efficiency on the part of the management in passenger service and assuming that your deductions here show that, never-

theless, there has been a constantly decreasing productive efficiency on the part of the engineer and fireman in passenger service, should that be given consideration in reducing his wage, if he is not now as productively efficient as he was ten years ago?

Mr. Lauck: I do not think it should, for the reason that the employe should not be held responsible for any mistakes that the management might make.

Mr. Sheean: No, I said assuming that there is 100 per cent efficiency in operation, in the passenger service.

Mr. Lauck: Then your argument, or your point, would be based upon the fact that they did not develop the passenger traffic, although the service was efficient?

Mr. Sheean: No.

Mr. Lauck: I cannot see how there could be 100 per cent efficiency in the management of the passenger service, if there is no passenger traffic. If you have the traffic, the engineer's productive efficiency increases.

Mr. Sheean: You mean, if they have not a passenger for every space in the coach?

Mr. Lauck: A normal amount of passengers for the train.

Mr. Sheean: Assuming that conditions have been normal; that there has been no duplication; that they have operated only the equipment and crews and the runs which are reasonably necessary to meet the traffic in its ordinarily elastic condition; and assuming 100 per cent efficiency in operation; and assuming, further, that your figures show that in passenger service the engineer and fireman are productively less efficient now than they were in former years; should there be any reduction made in their pay?

Mr. Lauck: I do not mean to evade the question, but I cannot see how there can be any decrease in productive efficiency if the management had been proper. You mean through the exactions of requiring expenses for safety and considerations of that kind, and interlocking signals?

Mr. Sheean: No, we can eliminate that, so as to keep entirely away from the remuneration or return to capital. I assume, wherever the human factor enters into the operation of all machines, that you and I, and even machines, may become less and less productive up to the 100 per cent efficiency.

Mr. Lauck: Yes.

Mr. Sheean: And assuming that that has simply been the situation here, that in times past, as shown in 1900, the contribution of the fireman and engineer in passenger service was greater than it is now.

Mr. Lauck: Well, why was it greater in 1900?

Mr. Sheean: I do not know.

Mr. Lauck: It was because they had more passenger miles, was it not? You had more units of output per passenger miles run, or you had a bigger passenger load, you had more passenger miles per passenger train mile. Now, if you are not having passenger miles per passenger train mile, or passenger train load, I should say that the engineer and fireman are not responsible.

Mr. Sheean: Do you find any of those things actually exist?

Mr. Lauck: I did not find that, I don't know. I think—

Mr. Sheean: But taking the situation as you found it here.

Mr. Lauck: I think there is an increasing cost of passenger traffic which is not due to locomotive engineers or firemen, but due to the duplication of passenger trains, the running of more passenger train miles than is necessary, and therefore decreasing the passenger train load on the average, and the engineer and fireman still running the trains under the direction of the operating management, cannot show passenger miles per $1,000 outlay, for reasons over which they have no control.

Mr. Sheean: But the figures which you took, Mr. Lauck, did not include any of the cost of conducting transportation at all, other than the mere pay roll of engineers and firemen, did they?

Mr. Lauck: No, no cost in this connection, but I had to take all passenger miles and—

Mr. Sheean: You simply took the passenger miles and the total amount paid engineers and firemen in the two cases?

Mr. Lauck: Yes, sir. The point, though—I do not mean to evade your point—the point is if the engineer and fireman are productively less efficient, in terms of passenger mile units, you might say, should he receive a decrease in wages?

Mr. Sheean: Yes.

Mr. Lauck: That then, it seems to me, would be attended by a decreased operating efficiency on the part of the road. But

if it was not, but was due to the employe himself, something that he had control over, and something that he was responsible for, I should say yes; if not, no.

Mr. Sheean: Well, Mr. Lauck, just to make clear what I am trying to get at, assuming that on this basis of units that you used, traffic units in the first case, that there is no change either upward or downward between the two periods that you compare; that treated as a whole, freight and passenger traffic, the productive efficiency now is the same as it was ten years ago; but then assume on the way that you arbitrarily divide, or the way that you divide, the freight from the passenger, that you show one as becoming more efficient in productivity, and the other less efficient in productivity, but treated as a whole it has remained just the same. Now, all I am trying to get at is whether the part that you are to add to those who are more productively efficient on your way of division may be taken from those who may be less productively efficient, the system as a whole being just the same as it was.

Mr. Lauck: Oh, you would say that if passenger traffic is less productively efficient, and freight traffic is more productively efficient, that on the average the productive efficiency of the employes would be about the same. That is your point, is it not?

Mr. Sheean: Yes, I am trying to assume a situation that where you have taken the mere units which you say are sold, and treating the system as a whole on those units, that the productive efficiency is the same now as it was 10 years ago.

Mr. Lauck: Yes.

Mr. Sheean: I believe you said, in order to make this division between freight and passenger, you had to resort to a formula in making the division?

Mr. Lauck: Yes, a well recognized formula.

Mr. Sheean: But, taken as a whole, you find the productive efficiency the same as it was ten years ago.

Mr. Lauck: Suppose we should find that case?

Mr. Sheean: Suppose we should find that case, and then on your division you put one above and the other below; could the part that you put above in this separation properly be taken care of by the part that you put below, in making your division?

Mr. Lauck: Do you mean by part, Mr. Sheean, the employes, or the money, or—

Mr. Sheean: The class of service.

Mr. Lauck: The class of service?

Mr. Sheean: Yes.

Mr. Lauck: Well, I think if it had remained flat and level through this change, then the conditions of payment should go on as before, but that is obviously impossible, through the increased freight train loads, it seems to me, and the increased passenger train loads. That is, through my division, if I have given an undue emphasis to freight in one character of divisions, that may be true, through the arbitrary method used, or the impossibility of working it out in the way you might like to do it; but I think that the increased freight train load and the increased passenger train load would preclude any conclusion to the effect that conditions were normally the same, and the one offset the other; but if they did, I should say the theory falls to the ground and is no good.

Mr. Sheean: That is, this theory?

Mr. Lauck: Yes.

Mr. Stone: Is there any division in the report to the Commission in regard to the mileage of private cars handled by foreign companies? It simply shows passenger revenue miles regardless of that, does it?

Mr. Lauck: Not that I know of. There might be some special car miles. I think there is.

Mr. Stone: I do not find it.

Mr. Lauck: I think there are some special car miles. (Examining report.) They have, on page 95,—have you a report there?

Mr. Stone: No, but never mind.

Mr. Lauck: Other passenger car miles. That may include that.

Mr. Stone: Does that include private car mileage?

Mr. Lauck: I could tell you in a few moments.

Mr. Stone: It does not matter, if you have not it at hand.

Mr. Lauck: That is a non-revenue service, however, so far as I know, and I do not think it would be included properly in passenger train miles; that is, if it is done through courtesy. It would increase the passenger train miles without adding any revenue to the carrier.

Mr. Stone: The point I had in mind was this: I remember

reading in one of the recent reports where they gave one specific case, that, had they paid revenue for this private car's transportation, they would have had some $3,500, I think, during the year, on one particular road.

Mr. Lauck: I think you are referring to an article in the Railway Age Gazette, I think I read that same article, about the needless waste.

Mr. Stone: I do not think the Railway Age Gazette would publish any such thing.

Mr. Lauck: Or the Wall Street Journal.

Mr. Park: Mr. Stone, the railroads are required to charge for all cars that they haul, are they not, that is Pullman private cars? Do you refer to official cars of other roads that are deadheaded?

Mr. Stone: The private cars, yes. I do not know that they are always official cars, but private cars of other roads.

Mr. Park: That would simply be taking it from one pocket and putting it in the other.

Mr. Stone: Oh, well, so far as that is concerned, it all goes into the same hopper, about nine groups of financial men in the end, anyway. We will get into that a little later, in another exhibit.

Proceed, Mr. Lauck.

Mr. Lauck: So far as I am able to determine, they do not make any distinction at all; there is no way of finding out in the report.

Referring to page 10 of the exhibit that we were considering, this is for ten representative western railroads: The Atchison; the Burlington; the St. Paul; the North Western; the Great Northern; Illinois Central; Northern Pacific; Oregon Short Line; Southern Pacific Company; and Union Pacific, considered as one system, for the period 1900 to 1913. On the basis of these ten representative western railroads, considered as one system, you have an increase of freight traffic in 1913 as compared with 1900, or 134.41 per cent; an increase in all character of traffic, both passenger and freight, of 137.58 per cent. The freight train load increased 78.08 per cent during the same period, therefore it was possible to handle this increase of 134.41 per cent in freight traffic with an increase of only 31.39 per cent in freight train miles, or the total increase of 137.58 per cent in

all classes of traffic considered together, with an increase of 61.69 per cent in revenue train miles.

It is impossible to show in this combination the fuel consumed per locomotive mile, on account of being an average reported for each road. The total coal consumption, however, increased 117.72 per cent; that is, it was 117 per cent more in 1913 than it was in 1900.

The comparative efficiency of engineers and firemen engaged in freight traffic, as measured by ton miles per $1,000 compensation outlay, for freight engineers was 26.99 per cent, or 27 per cent roughly, more in 1913 than in 1900, and for freight firemen was 23.81 per cent more in 1913 than in 1900.

Mr. Burgess: You have that over 1902. What does that mean?

Mr. Lauck: This "1" refers to this note, the tractive power of all locomotives. The first figures reported by the railroads as to tractive power of locomotives in service, was in 1902, therefore it is impossible to present that for 1900, but in order to have that in this comparison I took the 1902 figures.

Mr. Stone: The fact remains that the increase in tractive power has been made since 1902, or since the first record you have?

Mr. Lauck: Yes, that is the first record we have of it. It is possible, and later on I thought we might submit an earlier comparison; that is, from some of the annual reports, like the Great Northern and Northern Pacific. They show the average tractive power of locomotives in service, back ten, or fifteen years, but this is the earliest official data we have as to tractive power of locomotives used. I thought it would be well to have it in this comparison, although it was two years beyond the first limit, in order to show the tendency. Shall I go ahead, Mr. Stone?

Mr. Stone: Yes.

Mr. Lauck: Referring then, to page 13 in this exhibit, the Atchison, Topeka & Santa Fe Railway, this railroad shows for the period 1900 to 1913, an increase in freight traffic of 161.33 per cent. It shows an increased train load of 62.04 per cent. It was therefore possible for the Atchison to handle this increase of 161 per cent in freight traffic with an increase of only 62 per cent in freight train miles.

The coal consumed per locomotive mile, or the fuel consumed per locomotive mile, to be more exact, was increased 52.11 per cent in this period. The total coal consumption was, roughly, 100 per cent more in 1913 than in 1900.

The productive efficiency of freight engineers, as measured in terms of ton miles, was 11.72 per cent more in 1913 and of freight fireman 13.03 per cent more in 1913 than in 1900.

The next road appears on page 16 of the same exhibit, the Chicago, Burlington & Quincy Railroad. This road makes a remarkably good showing. The increase in freight traffic was 191.84 per cent during this period, of which, owing to the fact that it increased its freight train load 148.21 per cent, or from 195 tons to 484 tons, it was thus enabled to handle this unusual increase in freight traffic during the past thirteen years, of 191.84 per cent, with an increase of only 18.11 per cent in freight train miles, or it handled a total increase in all classes of revenue traffic of 193.60 per cent with an increase of only 42.23 per cent in train miles.

The coal consumed in doing this, increased 155.89 per cent. The fuel consumed or handled per locomotive mile increased in 1900, and of freight firemen 67.61 per cent more in 1913 than 78.85 per cent. The productive efficiency of freight engineers, as measured in ton miles was 72.30 per cent more in 1913 than in 1900.

The next showing is made for the Chicago & North Western Railway, and appears on page 19. The Chicago & North Western, during this period, experienced a developmeit of its freight traffic to the extent of 62.45 per cent, and of all its traffic of 71.45 per cent. At the same time, it increased its freight train load from 255 tons to 348 tons, or 36.47 per cent. By doing this, it was enabled to handle this increase of 62.97 per cent in traffic by an increase of only 16.31 per cent in freight train miles, which resulted in an increase in the productive efficiency of engineers and firemen, ranging from 5 to 12 per cent, in terms of ton mileage.

The Chairman: We will take an adjournment until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M., January 5, 1915, an adjournment was taken until 10 o'clock A. M., January 6, 1915.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 6, 1915.

Met pursuant to adjournment at 10:11 A. M.
Present: Arbitrators and parties as before.

W. JETT LAUCK was recalled for further examination, and having been previously sworn, testified as follows:

The Chairman: Are there any corrections to be made here this morning?

Mr. Stone: No. Have you any, Mr. Lauck?

Mr. Lauck: No, sir. I did not read the record.

The Chairman: Well, you may proceed.

Mr. Lauck: At the conclusion of the proceedings yesterday I believe I was on page 13 of Exhibit number 22, Atchison, Topeka & Santa Fe. I will run briefly through the remaining roads in this exhibit so as not to take too much time in detailed explanation.

Referring to page 13, therefore, we find for the period 1900-1913, an increase in freight traffic of 161.33 per cent on the Atchison, handled by an increase of only 62.87 per cent in freight train miles; due primarily to the increase in freight train load of 62.04 per cent; resulting in an increased output for freight engineers for each $1,000 invested of 11.72 per cent, and of freight firemen 13.03 per cent. The fuel consumed per locomotive mile during the same period increased 52.11 per cent.

Referring then to page 16, the Chicago, Burlington & Quincy Railroad, for the same period, we have an increase in freight traffic per ton mileage of 191.84 per cent, handled by an increase of only 18.11 per cent in freight train miles, due to an increase in the freight train load of 148.21 per cent. During the same period the fuel consumed per locomotive mile by this railroad increased 78.85 per cent, and the productive efficiency of the freight engineers, measured in terms of each $1,000 outlay, increased 72.30 per cent, and the freight firemen 67.61 per cent.

Referring to page 19, we have a showing as to the Chicago & North Western Railroad.

For the period under consideration the freight traffic of this road increased 62.97 per cent; which was handled by an increase of only 16.31 per cent in freight train mileage, resulting from an increase in the freight train load of 36.47 per cent. The fuel consumed per locomotive mile or the additional fuel handled during the same period increased 74.78 per cent. The resulting increased output for freight engineers was 5.86 per cent, and for freight firemen 12.27 per cent.

Referring to page 22, the Great Northern Railroad; the freight traffic of this road during the period under consideration increased 343.15 per cent, which was handled by an increase of only 140.13 per cent in freight train mileage, while the freight train load increased 97.82 per cent. The fuel consumed per locomotive mile was 38.85 per cent greater in 1913 than in 1890.

The increased output of freight engineers per $1,000 outlay was 47.95 per cent greater in 1913 than in 1890, and the freight firemen 33.66 per cent.

The Illinois Central Railroad is the next, shown on page 25. For this railroad during the period under consideration the tractive power of all locomotives in pounds increased 107.50 per cent. The freight traffic increased 115.58 per cent, which was handled by an increase of only 15.57 per cent in freight train miles, due to the fact that the freight train load was increased 83.33 per cent. The fuel consumed per locomotive mile during this same period was increased 80.86 per cent. The resulting increased productive efficiency in terms of freight engineers was 19.73 per cent, and of freight firemen 4.11 per cent.

I next refer to the Northern Pacific Railroad, on page 28.

In the case of this railroad we have an increase in the combined tractive power of all locomotives in service during the period of 163.85 per cent. The freight train load during the same period increased 70.44 per cent. As a result an increase of 182.60 per cent in freight traffic was handled by an increase of only 78.30 per cent in freight traffic mileage.

The added fuel consumed or handled for each locomotive mile operated was 68.68 per cent, while the increased output of freight engineers for each $1,000 outlay during the same period increased 31.27 per cent, and of freight firemen 14.25 per cent.

The next road for which data is shown is on page 31, the Oregon Short Line. During this period the tractive power of locomotives in service on this road increased 152.59 per cent. The freight train load during the same period increased 57.23 per cent. As a result of this increased tractive power and train loading, an increase of 125.54 per cent in freight traffic was handled by an increase of only 44.48 per cent in freight train miles. The added fuel consumed for each locomotive mile operated was 81.28 per cent more in 1913 than in 1900, and the resulting output in terms of freight engineers was 14.08 and of freight firemen 3.79 per cent.

The next road is found on page 34, the Union Pacific Railroad. During the period under consideration, the combined tractive power of all locomotives operated on this road increased 119.52 per cent. The freight train load increased 84.94 per cent. As a result, the road was able to handle an increase of 148.67 per cent in freight traffic with an increase of only 19.79 per cent in freight train mileage. The added fuel handled, per locomotive mile operated, increased 64.47 per cent, while the tractive efficiency of freight engineers increased 70.42 per cent, and of freight firemen 60.10 per cent.

I would next call your attention to page 40, the Chicago Great Western Railroad. During the period 1900 to 1913, the tractive power of locomotives operated by this railroad increased 106.14 per cent. The freight train load during the same period was increased 72.41 per cent. This road was, therefore, able to handle an increase in freight traffic of 89.23 per cent with an increase of only 5.73 per cent in freight train mileage, resulting in an increased productive efficiency of freight engineers of 32.50 per cent, and of freight firemen of 21.60 per cent. The added

fuel consumed or the added amount of coal to be handled for each locomotive mile during this period increased 47.93 per cent.

Mr. Burgess: What page was that?

Mr. Lauck: The Chicago Great Western, on page 40. I omitted there the Arizona & New Mexico, because it was not included in the movement.

Mr. Burgess: May I ask a question at this point?

Mr. Lauck: Yes.

Mr. Burgess: I do not quite understand, comparing the Illinois Central Railroad with the Union Pacific Railroad, the number of ton miles on the Illinois Central Railroad shows 115.58 per cent increase.

Mr. Lauck: What page is that?

Mr. Burgess: 25.

Mr. Lauck: Yes.

Mr. Burgess: While the increased productive efficiency for the engineers shows 19.73 per cent, and the firemen 4.11 per cent?

Mr. Lauck: Yes.

Mr. Burgess: And the Union Pacific shows the number of ton miles, 148.67 increase, but the productive efficiency of the engineers has increased 70.42, and the firemen 60.10. There seems to be such a great discrepancy between the productive efficiency of those two railroads, with a slight difference of ton miles.

Mr. Lauck: Yes, the increase in the freight train load has been practically identical, too, on each road, if you will notice. That is, the ton miles per freight ton mile on page 25, of the Illinois Central, increased 83.33 per cent, and the Union Pacific, on page 34, increased 84.94 per cent.

Mr. Burgess: How can you explain the great difference in the percentage of the productive efficiency, so far as the engineer and fireman are concerned, between those two roads?

Mr. Lauck: The only explanation of that is, although the Illinois Central Railroad practically had the same productive efficiency, so far as increased train load and handling the same amount of traffic as the Union Pacific, with practically the same increase in freight train mileage, that the Illinois Central made a greater outlay proportionately for its freight engineers and freight firemen.

Mr. Burgess: If the cost for engineers and firemen is the

same on both roads, that would necessarily imply the increased cost was due to overtime, would it?

Mr. Park: More branch line service, more small trains. The Union Pacific has comparatively few branch lines and the Illinois Central has many. Then there is a very radical change in the physical characteristics on the Union Pacific and very little on the Illinois Central.

Mr. Byram: Might it not be the question we discussed yesterday, of the greater amount paid to passenger and freight service than is reflected in these figures, because of your inability to accurately apportion freight and passenger expenditures?

Mr. Lauck: It might be due to that. That might affect it, but primarily it would be due to the fact that there was a greater proportionate outlay for engineers and firemen on the Illinois Central, taking the figures as they are and the division as it is, there would be a proportionately greater outlay for engineers and firemen.

Mr. Byram: That is merely a guess?

Mr. Lauck: That would seem to be the logical explanation.

Mr. Park: Is this the Union Pacific proper or does it include the Oregon Short Line?

Mr. Lauck: It does not include the Oregon Short Line.

Mr. Stone: Might not more overtime on the Illinois Central than on the Union Pacific also change the result?

Mr. Lauck: That might affect the outlay on the Illinois Central.

Mr. Burgess: That would indicate that the men on the Illinois Central were working longer hours, in order to earn this overtime?

Mr. Lauck: I could not say as to that. The only thing I could say was that there was more money paid for the same amount of service on the Illinois Central than on the Union Pacific. I could not say what it was due to.

Mr. Park: It might indicate just the contrary, if they were working excessively short hours on branch lines.

Mr. Burgess: Mr. Park, wherein would the branch line affect the real situation, when the ton miles per freight train on both roads is nearly equal?

Mr. Park: You are operating a good many more trains.

Some of the trains on the Illinois Central are much heavier than on the Union Pacific, and some lighter.

Mr. Burgess: After all, that would be revealed in the ton miles per freight train, would it not?

Mr. Park: I confess I could not explain the figures. You will have to get your expert to do that.

Mr. Burgess: I was trying to get your point because you suggested the branch line feature.

Mr. Park: A good many factors enter into it, and it would take the consideration of a great many factors probably not available to Mr. Lauck.

Mr. Sheean: It might be because of paying 100 miles for less than 100 miles—if the schedule provision called for 100 miles or less to be paid for.

Mr. Lauck: It might be due to any factor. I am not able to say. It might be due to the fact that although the train load is the same, it requires a longer time to get it over the Illinois Central, as Mr. Park said, than over the Union Pacific, because of better grade conditions on the Union Pacific.

Mr. Sheean: That is, if on one railroad you carry it 200 miles and they pay for 200 miles, and on another road you have two 75 mile runs, you would only carry out the 150 miles, of course, the actual miles, in one case, and the 150 miles would be distributed over the same payroll.

Mr. Lauck: There would be a proportionately greater cost per mile outlay. That would affect the $1,000 investment, or the total investment.

Mr. Park: From my knowledge of the two systems, there are a great many of these conditions on the Illinois Central, where there are short turn-arounds; whereas, there is only one on the Union Pacific, between Salina and Junction City on the Union Pacific.

Mr. Sheean: We had the Rock Island yesterday, which in your way of carrying it out showed a very great increased efficiency in train load and train mile and everything else, and yet, on your payroll, at the bottom, you showed a decreased productive efficiency, referring back to your basic table. Can you explain that in connection with this query here?

Mr. Lauck: The chart we omitted—that does show a decrease.

Mr. Sheean: Considering the three systems here, apparently the Rock Island shows as great an increase in tractive power, in train load and in all of the other elements which you say enter into making up the determination of productive efficiency, and yet, when you come down to the bottom, they are omitted from your basic table, and you show an actual decrease in what you call productive efficiency on the Rock Island.

Mr. Lauck: That was in 1890, wasn't it?

Mr. Sheean: I don't remember when it was. I thought it might be proper, when we were discussing these other two, to bring the third one in and see if we could clear that up. It is page 44, Exhibit 21.

Mr. Lauck: The only way I could explain that—we have all the fundamental elements of productive efficiency there in the Rock Island, just the same as in the other roads, that is on page 44 of Exhibit 21,—we have an increase in freight train load of 152 tons or 106 per cent, in round numbers, during this period, and an increase in ton mileage of 302 per cent, handled by an increase in freight train miles of only 73.27 per cent. If there is a decrease in the return per ton mile for each $1,000 outlay, I would say it would be due to a proportionately greater cost on the Rock Island than on the other roads. The same explanation I would make between the Union Pacific and the Illinois Central. It might be due to a great variety of causes.

Mr. Sheean: Can you tell us some of the causes which might bring that about. I understood you to say yesterday, by reference to your page 38, your basic table, showing the payroll of engineers and firemen on the Rock Island in the two periods, and applying this same formula that you applied in the other cases, that you would show a decreased productive efficiency between the two periods, notwithstanding all these other elements which, apparently, are the only elements considered in reaching the increased productive efficiency.

Mr. Lauck: I know nothing about the operating conditions on the Rock Island—I mean the conditions of employment or of the grades of the system and so on, or the condition of the physical equipment. As the facts stand and as they report them, they report this increase in train load and they have reported a very large increase in freight traffic over the road, with a comparatively small increase in freight train miles, just as the other

roads. Then, if they have not the physical equipment or the new machinery or reduction of grades to make that possible, they must be doing that by an added outlay for compensation to engineers and firemen.

That is the logical conclusion I would have to come to, comparatively speaking. That is, their labor costs are higher than the other roads. They may have two engines on a train to get it over certain portions of the road, thereby adding comparatively to the outlay, as compared with other roads. They would be substituting additional labor for improved capital instruments, it seems to me, to use economic terms.

Mr. Park: Even a double-header would affect the train load, would it not?

Mr. Lauck: Beg your pardon?

Mr. Park: A double-header would affect the train load; that is, you would use those figures for the second engine, whether it was a double-header or a pusher?

Mr. Lauck: The point I had in mind, knowing what the financial troubles of the Rock Island have been—although President Mudge, in his last annual report, makes a great deal to do over the increased productive efficiency of the Rock Island and gives a two or three page discussion on the period; 1913-1902, I think. Not knowing what the physical equipment of it is it might be possible to use several old class locomotives in place of one improved highly developed locomotive, or high tractive power locomotive, and thus gain the operating efficiency by additional labor outlay, would it not? That is the only explanation I could make.

Mr. Sheean: I don't know. I am trying to ascertain. You take, with all the other roads, the same elements as you do with the Rock Island, and from those elements you deduce that there was an increased productive efficiency in all the other cases. With the same elements on the Rock Island—resorting only to the same elements on the Rock Island as in the others, the increased train load and tractive effort, and assuming them to be correct, notwithstanding you have applied the same formula which you have applied in the other cases, it works out in the Rock Island showing a very greatly decreased efficiency for both engineers and firemen, and I was trying to find out, if I could, whether it was a defect in the formula, or, what explanation you

had, why the formula applied to the same facts in one case showed an increase and in the other a decrease.

Mr. Lauck: Well, you will find other cases of that. I don't pretend to say that every road shown on this formula showed increased productive efficiency. It might show a decreased productive efficiency. The fundamental things, as I have often reiterated—the formula is a rough attempt to get at a measure of productive efficiency. Now, the fundamental thing in terms of engineers and firemen may—if I had the data as the railroads have it, I would work it out per man. I would show a "per man" productive efficiency. But I have not got that. But I think the formula is one which is well accepted, and one which is used by all the representative railroads of the west. For instance, the Northern Pacific uses it in dividing its station employes. The Great Northern does the same thing—uses identically the same formula. They are on record as testifying in rate cases. There is no trouble about the formula as it is.

Mr. Sheean: In determining the productive efficiency of any particular branch?

Mr. Lauck: No; in determining the number of employes, or the cost of employes, the different results of service, just as I have done.

Now, the Rock Island shows an increase in the train load, which is a fundamental thing. It shows an increase in the amount of traffic handled compared with a similar increase in number of freight train miles. It seems to me logically to follow, that if the labor cost of the Rock Island, or if there is no productive efficiency per $1,000 outlay, it is due to certain conditions of operation on the Rock Island. It might be due to the fact that they are substituting labor for machinery which they might use; that they have not developed improved locomotives or cars, or road bed, that the other roads have. Although, as I say, President Mudge expressly disclaims that. Then, if that is true, it must be due to some increased labor outlay on that road which I know nothing about. It may be due to overtime, or something of that kind. I don't know. I have no way of telling.

Mr. Stone: It might be due to their system of bookkeeping, might it not?

Mr. Lauck: It is possible to be due to that; although, if reports are made in accordance with the Interstate Commerce Commission rules, I don't see how it could be.

Mr. Stone: The fact remains that the figures you derive these tables from are not made by you; they are furnished by the railroads themselves, are they not?

Mr. Lauck: Yes, the fundamental figures. Of course, I have made the divisions.

Mr. Stone: Well, the division was shown in every case?

Mr. Lauck: Yes, sir. There is something lacking in the efficiency of the Rock Island if they—I think it must be due to the management not being able, owing to the financial troubles of the Rock Island, the way it has been exploited by financial interests, not being able to get the money to improve the road the way it might. For instance, the Railway Age Gazette, in its last issue, takes issue with this report of President Mudge, in which he attempts to show why it shows this remarkable decrease in operating efficiency on the Rock Island.

Mr. Sheean: What financial element enters into any of these tables in the way you have made them up?

Mr. Lauck: To the extent the railroad should have the funds to provide the proper equipment. If it has used its funds for some other purpose and allowed its equipment to deteriorate, why, of course, the productive efficiency of the road is deteriorating, too. Take the Burlington, that is putting its earnings back into the road. It is buying new equipment, eliminating grades, straightening curves. It is one of the best railroads in the west. That is what it is using its money for.

Mr. Sheean: Is there any dollars and cents calculation—

Mr. Lauck: No; but suppose the Rock Island pays dividends or pays interest charges on improper flotations of bonds.

Mr. Sheean: But, I understood you to say that upon this productive efficiency table you had ignored entirely all capital considerations and all capital equipments, and all capital outlays.

Mr. Lauck: But I am explaining why it might be, on the Rock Island, they did not have the proper physical equipment to develop a productive efficiency like the Union Pacific or the Burlington, if they have not the money to provide equipment.

Mr. Sheean: Does this table that you have introduced

show that they have the equipment? Where they have increased the train load, reduced the train miles, does it or does it not show that they have the equipment? I don't know.

Mr. Lauck: The table does not show anything about the character of equipment that the Rock Island may have. I was then asked for an explanation why this was true. My explanation was that, logically, if the Rock Island does not show a productive efficiency in terms of $1,000 outlay for each fireman, it must be due to a greater wage outlay for engineers and firemen on that road. Now, if engineers and firemen on the road are working with old equipment, or equipment that is not up in comparison with the Union Pacific or the Burlington, and you have to use poor equipment there, you are not able to get from the equipment what you would, if you had money to purchase good equipment. Then you are adding to your labor outlay—you are reducing productive efficiency by additional labor cost, while you could get better returns by additional capital outlay, and the point was that the Rock Island has not used its earnings to improve the road. It has used it, as I was just stating—the Railway Age Gazette pointed out a comparison between the Burlington and the Rock Island, referring to this report—it has used it to pay illegitimate capital charges, or something growing out of improper financial management

Mr. Sheean: Well, Mr. Lauck, all I wanted to ascertain in this connection, was whether this table at page 44 does or does not show that the Rock Island, from an operating standpoint, is efficiently operated; that is, whether its efficiency has increased.

Mr. Lauck: Yes, it does show that.

Mr. Sheean: And the showing at page 44 is intended to show that there has been an increase in the efficiency operation of the property.

Mr. Lauck: Exactly.

Mr. Sheean: And, applying the same formula to that efficient operation on the Rock Island that you do apply in the other cases, it is also shown that, notwithstanding the increased efficiency of that operation, the contribution to that efficiency by firemen and engineers has decreased?

Mr. Lauck: Exactly.

Mr. Sheean: That is what I wanted to bring out.

Mr. Lauck: I would like to add, Mr. Sheean, that my explanation of that is that it seemed to me, from the history of the Rock Island, that the Rock Island is substituting additional labor outlays for what they might get if they used their money in buying additional machinery or improving the road.

In that connection, if I might be permitted, I would refer to President Mudge's report in regard to the Rock Island. In the Rock Island Annual Report for June 30, 1914, President Mudge gives a twelve year review of the Rock Island and its operating results. He says:

"Of late so much has been said, in and out of the press, as to the financial affairs and the physical condition of your property that the present seems an opportune time to place the facts before the stockholders in concrete form."

Omitting a lot of data that is not in point, on page 11 he says:

"On June 30, 1902, the company owned 661 locomotives with a total tractive power of 11,908,070 pounds, or an average of 18,015 pounds per locomotive.

"On June 30, 1914, the company owns 16,078 locomotives, with a total tractive power of 49,241,511 pounds, or an average of 29,345 pounds per locomotive."

The increase in the number of locomotives owned was 153.86 per cent. The increase in the average tractive power per locomotive was 62.89 per cent. The increase in the total tractive power—pounds—was 313.51 per cent.

Therefore, the Rock Island is efficient, so far as the increased tractive power of its locomotives is concerned, probably as efficient as any road we have, although I have not compared the actual tractive power.

Then he goes on to speak of the added equipment in freight cars. He says: "From the above it will be seen that 68 per cent of the freight cars added since 1902 have been of steel, or steel underframe construction." And as regards passenger cars he says: "All passenger train cars purchased since 1908 are of steel construction, so that more than 50 per cent of all the equipment added since 1902 is of solid steel construction."

Further, on page 12, he says: "Vigorous efforts have been made by your management to increase the operating efficiency,

the commercial freight train load having increased from 183 tons, in 1902, to 306 tons, in 1914."

So, from this review which he makes, showing that the equipment has at least been greatly increased, and that the efficiency of the equipment has been constantly added to, it would seem that if there is anything lacking in the physical requirements of the road, it would be in the road bed and rail and ballast, rather than the equipment, and I would modify my statement to that extent.

Mr. Sheean: We are in entire accord on that, Mr. Lauck. The only purpose of my inquiry was this: whether or not you, having worked out a formula by which you reach a conclusion of contribution of firemen and engineers to increased productive efficiency, the application of your formula to a road thus in that condition, showing in that case a decrease in productive efficiency, and applying the same formula to another road similarly operated with efficiency, leading to a different conclusion, casts any doubt in your mind upon the adequacy or sufficiency of the formula which you have applied.

Mr. Lauck: No, sir; it does not, as to the formula. The doubt in my mind would arise as to the road. That is, I think the formula is approximately correct, so far as any formula of that kind can be correct. I think if it shows decreased productive efficiency, that we must look to the road itself, that there is something wrong with the operation of the road, because the rates of pay are practically uniform, are they not, on all roads? And, if there is a decreased productive efficiency in terms of outlay per $1,000, there must be something in the operation of the road that would account for that, rather than any application of the formula to the road. I do not know whether I make myself clear or not on that point, Mr. Sheean.

Mr. Sheean: I cannot say that you do, Mr. Lauck, but I did not want to debate it. I thought perhaps, when you were comparing these other two roads, that you might possibly find—

Mr. Lauck: So far as the Rock Island is concerned—

Mr. Stone: If it is not out of order, I should like to ask a question of Mr. Sheean, if I might. Speaking of the formula, has your corps of experts been able to find anything wrong with the formula?

Mr. Sheean: You mean the formula—

Mr. Stone: This formula that we are applying on this exhibit.

Mr. Sheean: I do not know, very much more than the admissions made by Mr. Lauck yesterday, that he treated a passenger mile the same as a freight ton mile, and assumed in the distribution that you paid the same amount per freight ton mile as you did for a passenger mile; I do not think, beyond that, there is very much wrong with it.

Mr. Lauck: I might read, but I guess it would be unnecessary to take up the time, but I have data here to show, from the testimony of the comptroller of the Northern Pacific, that the Northern Pacific uses this formula, that the Great Northern uses this formula, that the Santa Fe uses this formula, and the railroads operating practically one-third of the mileage in the west use this same formula in their own accounts, and make the same kind of distribution.

Mr. Sheean: In wages?

Mr. Lauck: In wages. Take, for instance,—not of freight engineers and firemen, because you have the means of charging those direct; but, by the same principle, they make a distribution of costs of station men, which they have to do; they are up against the same proposition there that we are.

Mr. Byram: Do they not, in those calculations, use the train mileage, the actual freight and passenger train mileage, instead of $1,000 in money paid?

Mr. Lauck: Yes, but—

Mr. Byram: They use the train mileage, do they not?

Mr. Lauck: They use the train mileage to get—

Mr. Byram: Freight and passenger separately?

Mr. Lauck: To get the outlay for their employes of different kinds; say for station men, they want to apportion the cost of station men to freight and passenger traffic, they use the revenue train miles. Of course, they do not go beyond that, to the $1,000 outlay, because they have no occasion to do it.

Mr. Byram: What I mean was, you are speaking now of a case where the employe of a railroad company performs service for both freight and passenger?

Mr. Lauck: Yes, sir.

Mr. Byram: And when you distribute the wages or the expense of that service as between freight and passenger, the

company assumes to do it on the basis of passenger and freight train mileage.

Mr. Lauck: Yes, sir.

Mr. Byram: Common charges are divided that way?

Mr. Lauck: Yes.

Mr. Byram: That is what you mean?

Mr. Lauck: Yes.

Mr. Byram: But that is in the case where the service is common to both?

Mr. Lauck: Yes, sir.

Mr. Byram: And assumes to apportion it separately?

Mr. Lauck: Yes.

Mr. Byram: Now, then, in your case, as I understand it, you have taken the money paid to both freight and passenger men and divided it all in your different bases; that is, you have not been able to separate it as between freight and passenger mileage?

Mr. Lauck: No; I take the outlay, as you will see, for freight and passenger traffic and wanting to know or to get an idea of what freight traffic costs, and what passenger traffic costs in terms of engineers, and not having any division afforded me, I do the same thing that the railroad does with station employes, say, I say, so much of this cost was freight and so much was passenger, on the basis of the relation of revenue freight train miles to total revenue train miles.

Mr. Byram: But not as between freight and passenger train mileage; you do not use the same basis, because they use the actual freight and passenger train mileage as it runs; is that not right?

Mr. Lauck: You mean without regard to revenue?

Mr. Byram: In your case you do not distribute it on the actual train mileage, freight and passengers separately, do you?

Mr. Lauck: Yes, I take the ratio of revenue freight train mileage, to total revenue train mileage, and vice versa for passenger, take the ratio of passenger revenue train mileage to total train mileage.

Mr. Byram: Yes; but you take the earnings and apportion them on a different basis, do you not?

Mr. Lauck: No, sir; my basis was identical with that followed by the railroads, that is my understanding.

Mr. Sheean: You take the whole payroll, do you not?

Mr. Lauck: I take the whole payroll.

Mr. Sheean: And then you resort to the revenue miles, for the purpose of distribution?

Mr. Lauck: Yes.

Mr. Sheean: Now, there is no distinction in the payment of the engineers and firemen, whether it is revenue mileage or non-revenue mileage, is there?

Mr. Lauck: No, but cannot you see, that works to my disadvantage? I am taking all the costs; for instance, according to our computations, you are getting all your company freight and everything hauled free, and we are not charging anything—

Mr. Sheean: Hauled free? That is, it is shown in the payroll that you take; we pay for it, do we not?

Mr. Lauck: My understanding is that all your company freight is charged against the revenue tonnage.

Mr. Sheean: Well, you take the total payroll; what you actually do here is to take the total payroll that is paid out for the miles the men make.

Mr. Lauck: Yes, sir.

Mr. Sheean: Whether it be revenue, non-revenue, work, construction or anything else.

Mr. Lauck: Yes.

Mr. Sheean: And having taken that total amount of money, you then distribute it between freight and passenger on the basis of passenger per mile and the ton per mile?

Mr. Lauck: Oh, no; on the basis of the revenue train miles and total revenue train miles.

Mr. Sheean: Yes; of the revenue miles.

Mr. Lauck: Yes.

Mr. Sheean: And in that distribution you treat one freight ton one mile as equivalent to one passenger one mile?

Mr. Lauck: Just to get it clear, in that distribution I do not consider tons or passenger miles, but in working out the productive efficiency, I do as you say, yes.

Mr. Sheean: Yes, in order to save over to freight here, you take the total payroll paid to engineers and firemen, no matter what it is paid for, whether it is revenue or non-revenue, and then when you come to distribute it as between freight and

passenger, you resort to the revenue freight train and revenue passengers?

Mr. Lauck: Yes, sir; and thereby I place upon the revenue tonnage all the costs for engineers and firemen which were used in non-productive services, which is to the disadvantage of the theory, you see.

Mr. Sheean: Why to the disadvantage of the theory?

Mr. Lauck: Because we are considering only revenue producing units.

Mr. Sheean: Yes, and in case the proportion as between revenue and non-revenue varied from year to year, you would have a variance in the distribution, would you not?

Mr. Lauck: Well, the non-revenue would not affect the result—

Mr. Sheean: Take any one of your basic tables here, in which you have the total miles; take the Gulf, Colorado & Santa Fe, or any one of your exhibits; which one do you happen to take?

Mr. Lauck: I have Exhibit 22 here, at page 27.

Mr. Sheean: Now, there is shown on page 27, total revenue miles in 1900 of 25,159,213, is there not?

Mr. Lauck: Yes, sir.

Mr. Sheean: And that same year the total train miles were 33,000,000?

Mr. Lauck: Yes.

Mr. Sheean: In 1913, the revenue train miles were 31,801,000, while the total train miles were 32,000,000?

Mr. Lauck: Yes.

Mr. Sheean: Now, you make a comparison—the payroll, in fact, was paid for the total train miles made by those lines, was it not?

Mr. Lauck: Yes, sir.

Mr. Sheean: You make a comparison, in showing your increase, between the 25,000,000 and the 31,000,000?

Mr. Lauck: Yes, sir.

Mr. Sheean: Whereas, in fact, the money that was thus paid out was paid out as between 33,000,000 in 1900, and 32,000,000 in 1913, was it not?

Mr. Lauck: Exactly.

Mr. Sheean: So that there is evidently and manifestly a

change in the relationship or ratio between the revenue and non-revenue in those two years?

Mr. Lauck: Oh, yes, from time to time.

Mr. Sheean: Well, between the two years that you are making the comparison?

Mr. Lauck: Why, yes, of course there are apt to be all kinds of variations there.

Mr. Sheean: And if you made a comparison of the money which is paid for the 33,000,000 miles in the one year, as against the 32,000,000 miles for which it is paid in the second year, the ratio or change which you show here would entirely disappear on that table, would it not?

Mr. Lauck: No, the comparison of productive efficiency is based upon revenue producing freight; therefore, all these total train miles which you are speaking of there, you get all that service free, on the basis of the productive efficiency argument, you are putting your non-revenue service— For instance, you report to the Interstate Commerce Commission all revenue freight tonnage, and in that train you also include company material, which the comptroller of the Northern Pacific, I think it is, estimates about 18 per cent of the total tonnage; and in my distribution I am allowing you to carry all that free on these trains, in addition to what I show.

Mr. Sheean: In the way you have made up the table here, all I want to get at is, you have taken the total amount of money paid out for the 32,000,000 miles shown on this page 27?

Mr. Lauck: Yes.

Mr. Sheean: That is what we paid for.

Mr. Lauck: Yes, sir.

Mr. Sheean: The engineer gets just as much money.

Mr. Lauck: That is all I could do, of course.

Mr. Sheean: The engineer and fireman are paid just as much for hauling that company tonnage as if it was being hauled for an outsider, are they not?

Mr. Lauck: Yes, sir.

Mr. Sheean: So far as they are concerned, their productive efficiency is just the same?

Mr. Lauck: Exactly.

Mr. Sheean: And that is what this 32,000,000 of total miles run is, that is what that money was paid for in that year?

Mr. Lauck: Exactly.

Mr. Sheean: But you have then taken that as the basis on which you distribute the money thus paid out for all ton miles, and have distributed that to the revenue part for that year?

Mr. Lauck: Yes, I have done that. I think that works to your advantage, though.

Mr. Sheean: Let us take this one at page 27, and see. Had you compared all miles for which the money was paid in 1900 with all miles for which the money was paid in 1913, it would have then shown that in 1913 we were comparing 32,000,000 miles with 33,000,000 in 1900.

Mr. Lauck: Yes.

Mr. Sheean: Whereas, you are comparing 31,000,000 miles with 29,000,000 miles; you show an increase of two millions, whereas, if you had compared all miles, there would have been a decrease instead of an increase.

Mr. Lauck: Well, that would have worked a decided advantage, because I have shown— In the first place, let me explain a minute. You only report to the Interstate Commerce Commission your revenue tonnage. I don't know what you had on these other trains, nobody knows; except of course from the records of the Interstate Commerce Commission. I get your ton mileage which is revenue tonnage. Now, I compare that with revenue mileage, in order to make a fair comparison, and in making the distribution, I did the same way; therefore I take care of all that non-revenue tonnage, if it is on these trains, at this cost of the revenue producing firemen and engineers.

Mr. Sheean: Well, Mr. Lauck, just to see about that disadvantage, turn over to the preceding page, 25, the next to the last line, ton miles per $1000 compensation to freight engineers.

Mr. Lauck: Yes.

Mr. Sheean: On page 25.

Mr. Lauck: Yes, I am looking at that.

Mr. Sheean: If you carried that out on the basis of the total miles run there, you would show, would you not, that in 1913 this particular company was getting a less number of total miles per $1000, instead of getting more.

Mr. Lauck: Not at all. Not at all, no, sir. If I would carry that out on total miles, I would want you to tell me what was your ton mile tonnage in non-revenue service, and then I

would add it to the ton mileage in revenue service, and then I would make the division. According to the authority I cited, which is the only one I know of, I would add about 20 per cent to the ton mileage, and then I would make the division. But here I am taking care of your non-revenue service ton mileage by charging it up to the men who were only producing revenue, don't you see?

Mr. Sheean: You have the total train miles, however, have you not?

Mr. Lauck: Yes, sir.

Mr. Sheean: And you use as a divisor of that, in distributing our total payroll in accordance with the revenue?

Mr. Lauck: Exactly; I don't know anything about your non-revenue service and tonnage. You do not report that. I have no means of showing that.

Mr. Sheean: But you do have the total mileage reported and you do carry it out here?

Mr. Lauck: Yes, but the only figures as to tonnage I have is as to revenue tonnage, and, as I was saying, as I understand it, there is about twenty per cent more tonnage on these trains than revenue tonnage; that is, take your freight train load. The gross tonnage on a freight train load is much greater than the revenue tonnage, and I know nothing about the gross tonnage. That is not reported to the Interstate Commerce Commission. So I say that I am giving every advantage to the other side of the contention, by charging the cost of all service to the revenue producing service.

Mr. Sheean: Well, Mr. Lauck, I will just drop it with this. On your way of computing it, would a change in the character of the tonnage hauled from year to year, whether it was revenue or non-revenue, would that, in your method of computation, show an increased productivity on the part of the firemen if, in one year, they hauled revenue tonnage, whereas in other years they have been hauling structural steel and structural iron, ties?

Mr. Lauck: It would depend altogether on how much they hauled.

Mr. Sheean: Well, assuming here that in the one year all of the engineers were hauling ties and rails and supplies for the railroad company.

Mr. Lauck: Yes.

Mr. Sheean: And that they were hauling it in great big heavy trains.

Mr. Lauck: Yes.

Mr. Sheean: And in the next year they hauled a less number of tons, but revenue freight. On the way that you figure it here, your method of computation would show an increased productivity of the fireman and engineer, because one year he was hauling revenue and the other was hauling non-revenue.

Mr. Lauck: According to my method of division, Mr. Sheean, on the year you speak of when they were hauling material for the railroad, all that material would be hauled by these revenue producing men without any indication here of increased productive efficiency. That is, I have based my contention on that. If you put 50 per cent more company material on the road next year than you do this, and add nothing to your revenue tonnage, the men would haul 50 per cent more tonnage, and, so far as we have figures to show, the productive efficiency would remain the same as it is this year.

Mr. Sheean: Well, I did not make myself clear, Mr. Lauck. In 1900, the tonnage is hauled in one direction; it comes back empty. In 1913, the traffic department has brought about a way by which they bring the empties back loaded, in the other direction, so that it is all revenue service in 1913, and half of it was non-revenue in 1910. The number of cars the same and the engineers the same. Would your way of making this distribution show that in those two circumstances, that in 1913 the productive efficiency of the engineers and firemen had increased 100 per cent?

Mr. Lauck: If I understand your comparison, it would, but on the other hand in 1900 you would be hauling that fifty per cent of tonnage without giving any credit to the engineer and fireman at all. That is what is being done at the present time.

Mr. Sheean: I was simply trying to find out what your table shows.

Mr. Lauck: We think that is very important to bring to the point that, according to these computations in productive or fireman, about 20 per cent should be added to this for company efficiency, in considering the productive efficiency of the engineer freight, which they are allowing and getting no credit for.

Mr. Sheean: If there was a change in that relationship

from year to year, it would change the comparison which you make?

Mr. Lauck: Yes. If you put a lot of company freight on the road—say, in the case of a road, if you were building extensions and you were hauling your company freight free, you could show decreased productive efficiency for engineers and firemen and there would be no method, from your reports to the Interstate Commerce Commission, whereby you could find anything about it.

Mr. Park: You would not haul it free under those conditions, if you were building a new line.

Mr. Lauck: Not under the rules of the Commission.

Mr. Park: Don't you think the roads make accounting in accordance with the rules of the Commission?

Mr. Lauck: I think they do. I think there have been lots of cases of variations just as there is in any other line of business. For instance, the St. Paul, in building the Puget Sound extension, hauled its company material, and, as I recall, charged it to capital account, and stated in its annual report that the increased operating costs were due to increased outlays for labor. But I think that those instances are comparatively few, but it is a matter of record in a special report of the Interstate Commerce Commission.

The Chairman: Are the railroads required to report on non-revenue shipments?

Mr. Lauck: No, sir; not as I understand their form of report.

The Chairman: None of that character of shipments has been included in the reports upon which you base this table?

Mr. Lauck: No, sir. To make my comparison thoroughly accurate, I should, I think, add about 20 per cent to the productive efficiency of engineers and firemen.

Mr. Sheean: They are required to report their total miles.

Mr. Park: That is, the non-revenue miles.

Mr. Sheean: And the total wages, whether revenue or non-revenue.

Mr. Lauck: But I am charging all wages to revenue traffic, you understand.

Mr. Stone: Now, if we have the fog cleared away, I would like to ask a couple of questions on page 27. Mr. Sheean reads

29,000,000. It is 25,000,000 in my book, for 1900. Coming to the ton miles, in 1900, you had 3,425,000,000.

Mr. Lauck: Yes.

Mr. Stone: And they jump up, in 1913, to 7,385,000,000.

Mr. Lauck: Yes.

Mr. Stone: More than double?

Mr. Lauck: Yes.

Mr. Stone: An increase of 115 per cent?

Mr Lauck: Yes.

Mr. Stone: Yet that was handled with a reduction of total train miles, from 33,000,000 in 1900 to 32,000,000 in 1913, a reduction of 3.64 per cent in the total train miles during that period?

Mr. Lauck: Yes; that was handled plus a lot of non-revenue producing tonnage.

Mr. Stone: But it was really handled with less total train miles for which engineers and firemen were paid in 1913, although it increased 115 per cent, than it was handled with in 1900?

Mr. Lauck: Well, not strictly speaking. You should add to that the passenger miles, then you would have your total.

Mr. Stone: When you show total train miles, doesn't that include both freight and passenger?

Mr. Lauck: Yes, but you should compare—there would probably be an increase if you did that.

Mr. Stone: The fact does remain it shows a heavy increase in ton miles as against a corresponding light increase in train miles?

Mr. Lauck: I think I see your point there, Mr. Stone. I think I confused you somewhat. If you add the passenger train miles and the ton miles, you still have a decrease in the total train miles.

Mr. Stone: Now, coming back to this question of the Rock Island, have you, in your files, the full records of the financial history of the Rock Island?

Mr. Lauck: Yes, sir.

Mr. Stone: Is it possible for us to take the roof off and let them look down inside and see how the financial wheels really go around and see what is the matter with the internal affairs of the Rock Island?

Mr. Lauck: Yes, sir.

Mr. Stone: Then I think we had better do that in a later exhibit.

Mr. Lauck: Shall I proceed?

The Chairman: Yes, sir.

Mr. Lauck: Referring to page 43 of this Exhibit, the Colorado & Southern Railway, for the period 1900-1913. During this period the combined tractive power of locomotives in service on this road increased 49.35 per cent. The freight train load increased 138.56 per cent. Therefore, it was possible to handle an increase in freight traffic of 189.84 per cent with an increase of only 22.95 per cent in freight train miles. The resulting increase in productive efficiency, in terms of freight engineers, was 87.44 per cent more in 1913 than in 1900, and of freight firemen 69.65 per cent. The added amount of fuel consumed per locomotive mile was 51.84 per cent more in 1913 than in 1900. This road, being under the same management as the Burlington, seems to make even a better showing than its parent company.

The Denver & Rio Grande Railway, page 49. For this railway, the increase in tractive power of locomotives in service during the period under consideration was 104.41 per cent. The increase in the freight train load was 108.9 per cent. It was therefore possible, by this increased freight train load, to handle an increase in freight traffic of 165.16 per cent with an increase of only 23.81 per cent in freight train miles. The resulting increase in productive efficiency of freight engineers being 38.93 per cent more in 1913 than in 1900, and 37.53 per cent more in the case of firemen. The coal consumed, that is in total tons, increased 192.64 per cent. We have not the information available as to the fuel consumed per locomotive mile.

Referring next to page 55, the Duluth, South Shore & Atlantic Railway. In the case of this railway, the increase in tractive power for locomotives for the period is 81.49 per cent. The gain in the freight train load was 64.43 per cent, which made it possible to handle an increase in ton mileage of 82.63 per cent, with an increase of only 12.64 per cent in freight train miles. The resulting gain in productive efficiency, measured by the $1,000 outlay, for freight engineers was 11.09 per cent, and for freight firemen 10.21 per cent, while the added amount of coal to be handled per locomotive mile during the period was 41.49 per cent

Referring to page 58, the Fort Worth & Denver City Railway. In the case of this railroad the tractive power of the locomotives increased 353.11 per cent, and the revenue freight train load increased 105.04 per cent. It was possible, therefore, to handle an increase of 268.77 per cent in freight traffic with an increase of only 76.85 per cent in freight train mileage. The resulting gain in productive efficiency, measured in $1,000 outlay, in terms of freight engineers, was 67.97 per cent, and 48.42 per cent for freight firemen; while the additional fuel consumed amounted to 115.41 per cent increase, a lot of which I think was oil, on this road.

Page 61, the Gulf, Colorado & Santa Fe Railway. This railway had an increase of 327.55 per cent in the combined tractive power of its locomotives, an increase in its freight train load of 64.68 per cent, and was consequently able to handle an increase of 134.06 per cent in the volume of freight traffic, with an increase of only 36.45 per cent in freight train miles. The resulting gains in the productive efficiency of freight engineers was 37.84 per cent and of freight firemen 28.73 per cent.

The next road is found on page 67, the Missouri Pacific. During the period 1900-1913, the Missouri Pacific increased its combined tractive power of locomotives 112.23 per cent, its train load it increased 66.84 per cent. It was therefore able to handle an added volume of freight traffic of 110.58 per cent, with an increase of only 36.62 per cent in revenue freight train miles. The resulting gains in productive efficiency of freight engineers, however, was only 8.37 per cent, and of freight firemen 1.86 per cent. The increased fuel consumption per locomotive mile was 72.91 per cent.

I will refer next to page 73, the St. Louis, Iron Mountain & Southern Railway. In the case of the Iron Mountain, the increase in combined tractive power of all locomotives for this period was 142 per cent. The gain in the freight train load was 72 per cent, and it was possible to handle an added freight traffic of 128 per cent, with an increase of only 24 per cent in freight train miles. The resulting gains in the productive efficiency in the case of freight engineers was 7.17 per cent, and of freight firemen only .34 per cent. The added fuel consumed per locomotive mile was 70.40 per cent.

The next railroad considered is the St. Louis & San Fran-

cisco Railroad, which is found on page 76. The Frisco Road added to the tractive power of its locomotives 238 per cent during the period under consideration. It also increased its train load 87 per cent, and was therefore enabled to handle an increase in freight traffic of 476 per cent, with an increase of 203 per cent in freight train miles.

The resulting gains in productive efficiency of freight engineers was 18.04 per cent, and of freight firemen, 14.30 per cent, while the added fuel consumed amounted to an increase of 44.15 per cent per locomotive mile.

The next railroad is the St. Louis & South Western on page 79.

This railroad increased the tractive power of its locomotives during the period 207.80 per cent. It developed its train load also 51.87 per cent. It was therefore enabled to handle an increase in the volume of revenue freight traffic of 111.84 per cent, with an increase of only 40.57 per cent in revenue freight train miles. The resulting gains in productive efficiency of engineers and firemen was 15.63 per cent in the case of the former, and 10.9 per cent in the case of the latter, while there was an additional amount of fuel consumed per locomotive mile amounting to an increase of 67.17 per cent.

I think we can drop the exhibit at that point, Mr. Stone. There is just one more unimportant road. We already have another to take up.

Mr. Stone: If there are no questions at this time, we will take up Exhibit 23 for the period of 1909-1913. That practically brings us right up to date, with the exception of a few roads.

Mr. Lauck: Exhibit No. 23 bears the same title as the two preceding exhibits, and has to do with the same point, covering, however, the period 1909-1913, or the last five years.

On page 3 of this exhibit we have the same kind of a diagram that we have been using, which is reproduced in this larger style which appears on the easel. It embodies a total for seventy-eight western railroads considered as one operating system. Some of the railroads included in the total are not in the present movement, but were included before we knew accurately what roads would be in the movement.

Mr. Stone: I notice for the first time, Mr. Lauck, you give the average car capacity in coal and box cars?

Mr. Lauck: Yes. It was not possible to do this prior to this period, because I think the first reports as to capacity of box cars and freight cars was made about 1908, if I remember right. And we also show in addition to what has already been shown, the freight locomotive load, ton miles per freight locomotive mile. It has been impossible to show that previously, because the railroads were not required to report to the Interstate Commerce Commission, locomotive miles, prior to the year 1908.

Running over this hastily, just to bring out the salient points, we find for these seventy-eight western roads, considered as one system, an increase of the combined tractive power of all locomotives during this period of 34 per cent. At the same time, there is an increase in the average coal capacity of a box car of 9.38 per cent, and of coal cars, 7.69 for the period.

Owing to the heavier tractive power, the increase in the capacity of freight cars, and undoubtedly improvements to the road, it was possible to increase the ton miles per freight train, or the average revenue freight train load, during this period, 19.25 per cent, and also to increase the average freight locomotive 19.24 per cent.

Owing to this increase in the freight train load, therefore, it was possible to handle an added volume of freight traffic amounting to 36.71 per cent by an increase of only 14.67 per cent in freight train miles, or 14.44 per cent in freight locomotive miles.

The resulting gains in productive efficiency per $1,000 outlay to freight engineers was 4.68; for freight firemen 4.55 for each $1,000 invested.

The next chart is for the totals for ten representative western railroads, which I used in the previous exhibit.

Mr. Byram: Mr. Lauck, may I ask a question before you leave this chart?

Mr. Lauck: Yes, sir.

Mr. Byram: You did not make any comment about the increased efficiency of engineers and firemen on this chart.

Mr. Lauck: Yes, I remember that. 4.68 per cent and 4.55 per cent. Comparatively small compared with previous periods.

Mr. Stone: Due to what? Longer hours, or slower movement, or what?

Mr. Lauck: I would have to answer that as I answered the

question of Mr. Sheean, that I don't know, except it is an added labor cost. Of course, we have the fundamentals still increasing. The train load, the locomotive load handling an increased volume of traffic, with comparatively fewer miles.

This is for ten representative roads in the West, the next chart: the Atchison, the Burlington, the St. Paul, the North Western, the Great Northern, the Northern Pacific, the Illinois Central, the Oregon Short Line, the South Pacific and the Union Pacific. These are probably the ten representative roads in the West from the standpoint of operating efficiency. It is found on page 10 in the book.

In the case of these ten roads, considered as one system, we have a gain in the combined tractive power of locomotives of 40.30 per cent; an increase in the capacity of box cars of 8.12 per cent; an increase in the capacity of coal cars of 10.68 per cent. Owing, therefore, to the increased drawing power of the locomotive, the increase in the capacity of the cars used, and undoubtedly to improvements in the physical part of the roadbed and structures, the freight train load was increased 19.02 per cent. The freight locomotive load was increased 19.48 per cent. It was therefore possible, due to these three factors operating together, to handle an increased volume of freight traffic of 30.41 per cent, with an increase of only 9.42 per cent in freight train mileage, revenue freight train mileage.

The resulting gains in productive efficiency in the case of freight engineers was 5.90 per cent; freight firemen, 6.04 per cent.

Shall I go through the other roads?

Mr. Stone: Just as briefly as you can.

Mr. Lauck: This is the period, you will remember, of 1909-1913.

Referring then again to page 13, in the case of the Atchison —taking up each road separately. We have in the case of this railway an increase in the combined tractive power of locomotives, of 29.38 per cent. An increase in the average capacity of box cars of 15.84 per cent, and of coal cars of 14.36 per cent. It was therefore possible to increase the freight train load 15.89 per cent, and the freight locomotive load 14.43 per cent, and to handle an increased volume of freight traffic, amounting to 23.78 per cent, with an increase of only 8.45 per cent in freight revenue

train mileage. The coal consumed per locomotive mile during this period—or fuel, I should have said, increased 2.67 per cent, and the resulting gains in productive efficiency of freight engineers was 2.56 per cent, and of freight firemen 4.90 per cent.

The next railway is found on page 16. It is the Burlington. The Burlington, as usual, makes a comparatively remarkable showing. In the case of this railway we have an increase—just using round numbers—of 33 per cent in the combined tractive power of all locomotives; an increase in the average capacity of box cars of 15 per cent; of coal cars 13 per cent. It was therefore possible to increase the—this, together with physical improvements to the property—to increase the freight train load on this railway during this period 25 per cent, and the locomotive load 21.69 per cent. With this increased train load, the Burlington was therefore enabled to handle an added volume of freight traffic amounting to 32 per cent, with an increase of only 9.53 per cent revenue freight train miles, and the resulting gains in productive efficiency of its freight engineers was 12.15 per cent, and of its freight firemen 11.22 per cent. The fuel consumed per locomotive mile increased 2.37 per cent.

Page 19. I next call your attention to the case of the St. Paul. Taking the Chicago, Milwaukee & St. Paul, for this recent period, we find that it increased the tractive power of all of its locomotives 140 per cent. It also increased the capacity of its box cars 7 per cent, and of its coal cars 13 per cent. It was therefore enabled to increase its revenue freight train load 26 per cent, and its revenue locomotive load 25 per cent. Through these factors, together with physical improvements, it was enabled to handle an increased volume of freight traffic of 47 per cent, with an increase of only 16 per cent in freight train miles, and of 17 per cent in freight locomotive miles.

The resulting gains in productive efficiency of freight engineers was 8 per cent, and of freight firemen 4 per cent.

The increased fuel handled for each locomotive mile traveled amounts to 19 per cent.

The next railway is the Chicago & North Western, which is found on page 22.

During the period under consideration, the North Western added to the tractive power of its locomotives in service, 42 per cent. It increased the capacity of its box cars 8 per cent,

and its coal cars 8 per cent. It was therefore enabled, together with physical improvements to the property, to increase its revenue freight train load 33 per cent, and its freight locomotive load 38 per cent, and consequently handled an increase of 29 per cent in freight traffic, with a decrease of 5.18 per cent in freight train miles, and a decrease of 6.90 in freight locomotive miles.

The next diagram is for the Great Northern Railway on page 25.

In the case of the Great Northern, we find an increase of 46 per cent of the tractive power of locomotives in service during this period: and an increase of 5 per cent in box car capacity, and 9 per cent in coal car capacity, and a consequent increase in the freight train load of 25 per cent, and of the locomotive load of 20 per cent.

Through these figures, together with physical improvements, it was possible to handle an increased volume of freight traffic amounting to 58 per cent, with an increase of 28 per cent in freight train mileage.

The resulting gains in the productive efficiency of freight engineers was 3 per cent, and of freight firemen 5 per cent, measured in $1,000 outlay per ton mile.

The fuel consumed for each locomotive mile operated increased 9 per cent.

The next railway to which I will ask your attention is found on page 28. It is the Northern Pacific Railway.

In 1913 the Northern Pacific had added to the tractive power of its locomotives, as compared with 1909, 15 per cent, and had increased the capacity of its box cars 5 per cent and of its coal cars 14 per cent.

This added equipment, together with physical improvements, enabled them to increase their revenue freight train load 24 per cent, and their freight locomotive load 27 per cent. They were enabled to handle an increase in freight traffic of 18 per cent, with an actual decrease in freight train miles of 5 per cent, and a decrease in freight locomotive miles of 7 per cent.

The resulting gains in the productive efficiency of the engine crew being 16 per cent in the case of freight engineers, and 13 per cent in the case of freight firemen.

I next ask your attention to the Chicago Great Western on page 34.

Mr. Stone: You passed the Canadian Pacific on page 31.

Mr. Lauck: Yes; I beg your pardon. I passed that.

In the case of the Canadian lines of the Canadian Pacific, page 31, there was a gain in the tractive power of its locomotives of 47 per cent in 1913, as compared with 1909; an increase in the capacity of its box cars of 17 per cent, and of its coal cars of 5 per cent.

These figures, together with physical improvements, made it possible to increase the revenue freight train load 27 per cent, and the revenue freight locomotive load 23 per cent, and the railroad was thus enabled to handle an increase in the volume of freight traffic of 81 per cent, with an increase of only 46 per cent in freight train mileage.

The resulting gains in productive efficiency were, in the case of freight engineers, 3 per cent, and in the case of freight firemen, 1 per cent.

The added work, or the added amount of fuel consumed per locomotive mile, amounted to 6 per cent more in 1913 than in 1909.

Turning then to page 34, the case of the Chicago Great Western, which has made a remarkable showing within recent years, we find in the case of this road that it increased the tractive power of its locomotives during the period 1909-1913, 58 per cent, and the capacity of its box cars 27 per cent, and of its coal cars 44 per cent.

These improvements, together with the physical additions to the property, enabled it to increase its revenue freight train loads 51 per cent, and its revenue freight locomotive load 50 per cent. It was therefore enabled to handle a gain of 47 per cent in the volume of freight traffic, with an actual decrease of 4.89 per cent in freight train mileage, and a decrease of 2 per cent in freight locomotive miles.

The resulting gains in productive efficiency of the engine crew were, in the case of freight engineers, 25 per cent, and of freight firemen 23 per cent, while the added fuel consumption per locomotive mile was 8.58 per cent.

The next railway is the Colorado & Southern, page 37. In the case of this railway we have an increase in the tractive power

of 9 per cent in 1913, as compared with 1909; an increase in box car capacity of 3 per cent, and of coal car capacity of 18 per cent.

And these factors, together with physical improvements, made possible an increase in the revenue freight train load of 20 per cent, in round numbers, and of the freight locomotive load of 17 per cent. The railway was therefore enabled to handle a gain in freight traffic of 19 per cent, with an increase of only 5.46 per cent in revenue freight train miles, and an increase of only 2 per cent in freight locomotive miles.

The resulting gains in productive efficiency were, in the case of freight engineers, 15 per cent, and of freight firemen 13 per cent, while the added amount of fuel per locomotive mile was 12 per cent more in 1913 than in 1909.

The next diagram is for the Denver & Rio Grande, which is found on page 40.

In the case of this railway we find that an addition of 22 per cent was made to the tractive power of locomotives in service; that the average box car capacity was increased 12 per cent, and of coal cars 9 per cent.

These additions, together with physical improvements, made possible an increase in the revenue freight train load of 26 per cent, and of the revenue freight locomotive load of 21 per cent. And the Denver & Rio Grande, therefore, was enabled to handle an increase of 30 per cent in its freight traffic during this period with an increase of only 3 per cent in revenue freight train miles, and an increase of slightly less than 1 per cent in its revenue freight locomotive miles.

The resulting gains in productive efficiency were, in the case of the freight engineers, 15 per cent—

Mr. Stone: Pardon me, Mr. Lauck: I think you read that wrong. We don't want to get the record wrong. You said less than 1 per cent in freight locomotive miles.

Mr. Lauck: I see. That is on the revenue train miles.

Mr. Stone: The freight locomotive miles is 7 per cent.

Mr. Lauck: Yes. It increased 7.23 per cent.

The productive efficiency, as measured by $1,000 compensation, was 15 per cent more for freight engineers in 1913 than in 1909, and 15 per cent more for freight firemen, while—I have not the information available as to the locomotive mile fuel consumption.

The next railway is the Duluth, South Shore & Atlantic, found on page 43.

In the case of this railroad, we find an increase in its tractive power of locomotives in service of 63 per cent; an increase in the box car capacity of 8 per cent, and of coal cars a decrease of 2 per cent. There was an increase also during the period in the revenue freight train load of 28 per cent, and of the revenue freight locomotive load of 19 per cent, and this transportation company was therefore enabled to handle an increased volume of freight traffic amounting to 51 per cent, with an increase of only 17 per cent in freight train miles, and 27 per cent in freight revenue locomotive miles.

Mr. Stone: Freight locomotive miles, 27 per cent.

Mr. Lauck: Freight locomotive miles, yes; they are revenue miles. The resulting gains in productive efficiency, in the case of freight engineers, however, was, as shown by the $1,000 outlay, only .32 of one per cent, and of freight firemen was 1.13 per cent. The added amount of fuel that was necessary to be handled for each locomotive mile operated to 23 per cent.

The next company to which I would call attention is the Fort Worth & Denver City, which is found on page 49. In the case of the Fort Worth & Denver City, there was a gain in its tractive power in 1913 as compared with 1909, of 3.43 per cent, while the average capacity of its box cars scarcely increased at all, less than one per cent, while the coal cars show no change. There was a gain, however, in the average revenue freight train load of 14.92 per cent, and in the revenue locomotive load of 17.14 per cent. This increase in the train locomotive loads, together with improvements to the physical property, enabled this transportation company to handle an increased volume of freight traffic, amounting to 14 per cent, with a decrease in revenue freight train miles of 1.97 per cent, and of revenue freight locomotive miles of 2.23 per cent. The resulting gain in the productive efficiency of freight engineers was 21.87 per cent and of freight firemen 16.98 per cent. The fuel handled for each locomotive mile operated was 13.13 per cent more in 1913 than in 1909.

The next transportation company is found on page 52, the Kansas City Southern Railway. In the case of the Kansas City Southern we find an increase in the tractive power of its locomo-

tives in service of 39 per cent during this period and an increase of 2 per cent in the average capacity of its box cars and of 10 per cent in its coal cars. These improvements, together with other physical factors, made possible an increase in the average freight train load of 47 per cent and of the freight locomotive load of 43 per cent. It was therefore possible for this railroad to handle an increased volume of freight traffic amounting to 14 per cent with an actual decrease of 22 per cent in revenue freight train miles and a decrease of 20 per cent in freight locomotive miles. The resulting gains in the productive efficiency of freight engineers was 16 per cent and of freight firemen 17 per cent. The added amount of fuel handled for each locomotive mile shows an increase of 16 per cent.

The Kansas City Southern, I think, makes a more significant showing than any road that we have considered in this period, up to this time, in the way that it has decreased its revenue train mileage and its revenue locomotive mileage. Of course, the showing is no better than other roads. It might have had an excess of mileage before, and it might not be indicative of as great productive efficiency, but it is very significant in showing a decrease with an added volume of traffic.

The Missouri & North Arkansas seems to have started at a very low ebb and not have reached very high attainments in the way of efficiency at the present time, so I think it would be just as well to pass that over.

Mr. Park: They are not in the movement, are they?

Mr. Lauck: Yes, I think so.

Mr. Park: I thought they were in the hands of a receiver.

Mr. Lauck: They are in the hands of a receiver, I think. It seems more remarkable than it really is.

The Chairman: Is it material to the issue now being tried?

Mr. Lauck: Yes, sir, it is. I have a diagram for the Missouri & North Arkansas, showing the same as for the other railroads. We were commenting on its remarkable gain, which seems to be indicated, but it is more seeming than real.

In the case of the Missouri & North Arkansas, there was an increase of 52 per cent in the tractive power of locomotives in 1913, as compared with 1909, and an increase in its box car capacity of 9 per cent. No change in its coal car capacity. There was a seemingly remarkable increase in its revenue

freight train load of 101 per cent, but upon referring to the table it will be seen that the revenue freight train load in 1909 was only 74 tons, and in 1913 149 tons, so while there is a seemingly remarkable increase, it does not really amount to anything at the present time.

Mr. Park: They are pulling 10 cars now where they used to pull 5?

Mr. Lauck: Yes; something like that. Twenty-three locomotives now where they had 16 before. At any rate, they were enabled to increase this freight train load to this extent, and the locomotive load 46 per cent, and to handle, therefore, a gain in freight traffic of 295 per cent, with an increase of 169 per cent in revenue freight train miles, and the same per cent in the case of revenue locomotive miles. The resulting gain in the productive efficiency of freight engineers was 48 per cent and of freight firemen 60 per cent. The fuel consumed per locomotive mile increased, however, only 11 per cent.

The next transportation company is the Missouri Pacific, on page 61. In the case of this railway company, we find an increase in the combined tractive power of all locomotives in service of 21 per cent, and an increase in its average box car capacity of 6 per cent and of coal car capacity 2 per cent. Through these improvements, and they are undoubtedly physical improvements, it was possible to increase the revenue freight train load 36 per cent and the revenue freight locomotive load 35 per cent. As a net result, therefore, the Missouri Pacific was enabled to handle an increased volume of freight traffic amounting to 39 per cent, with an increase of only 3 per cent in revenue freight train miles, and an increase of only 2 per cent in freight locomotive miles. The resulting gains in productive efficiency, measured in ton miles per $1,000 outlay, of freight engineers, was, for this period, 25 per cent, and for freight firemen 24 per cent. The fuel consumed by this railway company in 1913, per locomotive mile, was 8 per cent more than in 1909.

The next transportation for which there is a diagram appears on page 67, the St. Louis, Iron Mountain & Southern Railway. In the case of this transportation company, we have a gain in the tractive power of its locomotives in service of 3.64 per cent, and a slight increase in the capacity of its box cars, amounting only to .55 of one per cent, but an increase in the

capacity of its coal cars amounting to 12.53 per cent. Through these improvements and physical additions or improvements to the property, it was possible to increase the average freight train load 27.06 per cent and the average freight locomotive load 34.99 per cent; and as the net result, the Iron Mountain was enabled to handle an increased volume of freight traffic amounting to 43.96 per cent during this period, with an increase of only 6.91 per cent in freight train miles and 6.86 per cent in freight locomotive miles. The resulting gains in output, in terms of ton miles were, for freight engineers 9.13 per cent and for freight firemen 8.02 per cent, while the added amount of fuel handled or consumed per locomotive mile increased 8.37 per cent.

The next company is the St. Louis & San Francisco Railroad, on page 70. We find that the Frisco increased the tractive power of its locomotives in service 20.80 per cent during this period, and slightly increased its box and coal car capacity 1.03 and 3.92 per cent, respectively. It was, therefore, possible for it to increase its average revenue freight train load 26.87 per cent and its revenue freight locomotive load the same proportion, 26.20, and as a consequence of all these factors, the Frisco was enabled to handle or transport an increase of 23.94 per cent in its freight traffic with an actual decrease of 2.23 per cent in revenue freight train miles and a decrease of 2.07 per cent in its freight revenue locomotive miles. The resulting gains in the productive efficiency of the engine crews were, in the case of the freight engineers, 8.09 per cent, and of the freight firemen, 10.50 per cent.

The next railway is the St. Louis Southwestern, found on page 73. In the case of this company we find an increase of 26.40 per cent in the tractive power of locomotives in service, and a slight gain of one per cent in the case of both box cars and coal cars. Its operating development was also marked by an increase in the average freight train load of 17.29 per cent, and of its average freight locomotive load of the same percentage. It was, therefore, enabled to transport an increase of 24.24 per cent in its freight traffic with an increase of only 5.66 per cent in revenue freight train miles and of the same per cent in revenue freight locomotive miles. In the case of freight engineers, there was a gain in productive efficiency, measured in ton miles, of 6.22 per cent, and of freight firemen of 3.35 per cent.

The next railroad is the San Antonio & Aransas Pass Railway. This company shows a gain in the tractive power in its locomotives in service during these latter years of 51.42 per cent and an unusual increase in box car capacity of 11.88 per cent, and of coal car capacity of 16.56 per cent. These factors, together with other improvements, made it possible for the railroad to increase its revenue freight train load 16.35 per cent and its revenue locomotive load 59.32 per cent, the net result being that it was enabled to handle or transport 78.58 per cent more freight traffic with an increase of only 12.71 per cent in revenue freight train miles, and of 12.08 per cent in freight locomotive miles. The gains in the productive efficiency of its freight engineers amounted to 42.83 per cent and of its freight firemen to 44.16 per cent.

The next company is the San Pedro, Los Angeles & Salt Lake Railroad, on page 79. This company made an increase of 3.80 per cent in the tractive power of its locomotives in service and an increase of 2.59 per cent in the average capacity of its box cars, and only a slight gain in its coal car capacity. It, however, increased or developed a train load 38.70 per cent heavier in 1913 than in 1909, and a freight locomotive load 29.29 per cent heavier. It was, therefore, enabled to transport 71.61 per cent more freight traffic with an increase of only 29.97 per cent in revenue freight train miles and of 32.62 per cent in revenue freight locomotive miles. The resulting gains in productive efficiency, measured by the standard here used, was, in the case of freight engineers, 13.29 per cent and in the case of freight firemen an increase of 13.17 per cent. The added fuel consumption per locomotive mile was 21.92 per cent.

Is the Southern Kansas Railway Company of Texas in?

Mr. Stone: That is a subsidiary of the Santa Fe. It is listed as a separate road, though.

Mr. Lauck: In the case of the Southern Kansas Railway of Texas, which is the Panhandle Santa Fe now, is it not, the new name? It is shown on page 82. It has no equipment of its own, and therefore made no report as to locomotives in service and box car capacity. The increase in the revenue freight train load on this railroad, however, during the period under consideration, was 134.05 per cent, and of the freight locomotive load, 144.24 per cent. It was, therefore, enabled to handle an increase

in freight traffic of 123.58 per cent with an increase of less than one per cent in revenue freight train miles and an actual decrease of 8.25 per cent in revenue locomotive miles. The resulting gain, in terms of $1,000 outlay to freight engineers was 170.85 per cent, and to freight firemen, 160.33 per cent. That is another case of the Louisiana & Arkansas.

Mr. Stone: That is all?

Mr. Lauck: The Spokane & International.

Mr. Stone: That is not in.

Mr. Lauck: Are you going to put in 1913 and 1914?

Mr. Stone: They are not here yet. Mr. Chairman, we have prepared the next exhibit, number 24, for this same class of work, for 1913 and 1914. As I explained yesterday, it is not complete, it is only for a part of the roads, because all the roads have not yet made their 1914 reports. For some cause or other, the boy has not got them here, and I am wondering if Mr. Sheean would care to ask questions on these three, or would care to wait until we get the fourth one. If not, I shall have to ask you to suspend until this afternoon.

The Chairman: I think the witness is very much fatigued, and perhaps we might as well take a recess until 2:30.

(Whereupon, at 12:20 o'clock P. M. a recess was taken until 2:30 o'clock P. M.)

After Recess.

W. JETT LAUCK was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Stone: We desire to introduce as our next Exhibit Number 24, showing: "Increased Work and Productive Efficiency of Locomotive Engineers and Firemen for 1913-1914." As I explained before we went to lunch, this is not complete because all the railroads have not made their annual reports, as yet. We have not been able to prepare any graphic charts because it has been worked up hurriedly in the last few weeks,—few days really.

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 24, January 6, 1915.")

Mr. Stone: This exhibit, Mr. Lauck, was prepared in the

same manner as the others, from the reports of the railroads?

Mr. Lauck: Same manner and same method, and I think all that will be necessary will be to refer to one or two roads and submit the exhibit, unless there are further questions, in order to save time.

Mr. Stone: That will be all right.

Mr. Lauck: Without any further explanation, therefore, if you will kindly refer to page 2, you will find, in section 2, the showing for the Atchison, Topeka & Santa Fe Railway during the fiscal year ended June 30, 1914. Upon referring to this table you will see that during this year, which was marked by industrial depression and less traffic movement, that there was a slight increase of approximately one per cent or .98 per cent in tractive power, that the car capacity of the Atchison, in terms of box cars, increased 1.87 per cent, and coal cars 4.77 per cent. It was therefore possible for the Atchison to increase its ton mile per freight train mile, the average revenue freight train load, 7 tons, or 2 per cent, and its locomotive load 22 tons or 6.30 per cent. Owing to this fact, although the traffic fell off, upon the Atchison, 5.97 per cent, the decrease in revenue freight train miles was correspondingly greater, 10.69 per cent, and freight locomotive miles 11.54 per cent, resulting in a gain in the productive efficiency of freight engineers of 6.42 per cent and of freight firemen of 5.76 per cent. The conclusion is that although there was less traffic moved, it was, in this period of depression, moved more economically than in previous years, and that the train load or locomotive load was increased, and that the productive efficiency of the men was further increased beyond the fiscal year 1913, covered by the previous exhibit.

The showing for the Atchison is the same as shown for the other 39 roads which are submitted in the exhibit. The method is the same and the results can readily be seen from glancing at the table.

Mr. Stone: There was, in a few of the roads, a slight decrease in productive efficiency?

Mr. Lauck: I think, in the case of some roads, there is a decrease.

Mr. Byram: How do you account for that, Mr. Lauck, where there is a decrease in productive efficiency on roads that have hitherto shown an increase?

Mr. Lauck: I think that is due to lack of traffic.

Mr. Byram: Then the volume of traffic has something to do with the productive efficiency?

Mr. Lauck: Yes, sir, I think so, undoubtedly. That is, if you had superb equipment and did not have the traffic, you would operate at a loss.

Mr. Byram: Would that work the other way in case there was plenty of traffic? Would the productive efficiency be affected similarly?

Mr. Lauck: Yes; there would be a gain. I think it would be true that—possibly is true now—that there could be heavier train loads if more traffic were offered, or if car loading could be better developed.

Mr. Byram: Or if the loading could be balanced so that we could always have a full load both ways.

Mr. Lauck: Yes. If no further questions, I won't take up the time going into this further.

Mr. Stone: That concludes all of our exhibits, those four covering these different roads, increased working and productive efficiency of engineers and firemen.

Mr. Lauck: We had one on the train length.

Mr. Stone: That is the number of cars, you mean? No. 25?

Mr. Lauck: Yes. Is that the next one?

Mr. Stone: Yes.

Mr. Sheean: Before you pass that, Mr. Lauck, I would just like to ask on that, page 6, Southern Pacific. You reach the conclusion there that freight engineers have decreased in productivity 67/100 of one per cent; that firemen have increased in productive efficiency by 14.91. Will you just explain, please, how that result is brought about on your formula?

Mr. Lauck: I am afraid I cannot explain that, Mr. Sheean. The only explanation I could offer would be that the number of firemen was decreased, or more work was required of a certain group of firemen.

Mr. Sheean: Well, the number of firemen is not taken into consideration in this table, is it, as affecting compensation?

Mr. Lauck: I mean this, that a fireman might be required to do more work than formerly.

Mr. Sheean: Well, assuming that they worked under just

the same schedule, no change in the schedule of either engineers or firemen in the two years shown here. How can this result come about, decrease of one man on the engine and an increase in the productive efficiency of the other man working alongside him?

Mr. Lauck: I think if both worked on the same engine as hitherto, you would not have the variation there, if the same conditions of moving traffic obtained, as regards the fireman. There must have been some change in the comparison of firemen outlay with traffic, otherwise the change could not have occurred. What the change was I am unable to say.

Mr. Sheean: Well, it might of course be brought about by your distribution of payroll, might it not?

Mr. Lauck: I cannot see how it would.

Mr. Sheean: Well, if there was a greater differential between the engineers and firemen, and assuming that you did not by this formula get just the right distribution, it might affect one class, in the application of your formula, differently than it would affect the other.

Mr. Lauck: I don't know whether I exactly get the question or not. It seems to me that a case of that kind would indicate that in the distribution there was a relatively higher labor cost for engineers on that road, as compared with firemen. I don't think the distribution would affect it, but there would be the amount of money which was paid to engineers, as compared with firemen. The same way, if it showed a variation from firemen to engineers. If the revenue train mileage ratio remained the same, it would affect both classes proportionately, and the conclusion would be that either the firemen were doing a greater amount of work for the same outlay, or the engineers were not doing the same amount of work for the same outlay.

Mr. Sheean: Well, I simply wanted to know whether you had an explanation of it.

Mr. Stone: Well, don't you find the same thing, Mr. Lauck, all the way through, in all of your other derivative tables?

Mr. Lauck: Yes; sometimes it varies from one to the other.

Mr. Stone: Take, for example, in your Exhibit 23, these different roads, you will find a difference of 12 or 15 per cent

between engineers and firemen, and there is only a difference, all the time, of 12 or 15 per cent.

Mr. Lauck: I would like to say, by way of explanation again, that this is a rough attempt, under the conditions under which I had to work, to attempt to reduce productive efficiency to terms of firemen or engineers, or terms of dollars and cents, and I don't think that it shows any more than a tendency. I think the main things are the train load and the decreased mileage, and the ton miles per $1,000 compensation exhibit a general tendency which may be worked out accurately, and vary a great deal from the actual per cent shown. It may be greater or it may be less.

Mr. Stone: Going in really as a part of these three, we will submit Exhibit 25, "The Increase in the Number of Loaded and Empty Cars in Freight Trains in 1909 and 1913."

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit, No. 25, January 6, 1915.")

Mr. Lauck: In the preceding exhibit we have shown the increase, since 1909, in the average capacity of freight cars, both box and coal. This exhibit carries that one step further and shows the increase in the train length, both in terms of empty cars and loaded cars, or total freight cars and loaded cars.

You will recall, in Exhibit 23, I believe it was, we showed the increased capacity of box and coal cars for the period 1909 to 1913. This exhibit shows for the period 1909 to 1913 the increase in the number and per cent of total cars in a train and of loaded cars per freight train.

Referring, on page 2, to the Atchison, Topeka & Santa Fe, we find the total freight cars per train were 3.09 per cent more, or there were 3.09 per cent more cars in a freight train on the Atchison in 1913 than in 1909, or an increase of 10.77 per cent in the length of the train. Confining the comparison to loaded freight cars per train, we find that during this same period 2.02 more loaded cars were in a train, an increase of 9.85 per cent.

Mr. Stone: These figures are not yours; they are simply the figures of the railroads themselves?

Mr. Lauck: Yes, sir.

Mr. Stone: The percentage is derived by you, of course?

Mr. Lauck: Yes.

Mr. Stone: But the figures quoted for 1909 and 1913 are from the annual reports of the railroads?

Mr. Lauck: Yes, sir; they are reported as, technically speaking, freight car miles per freight train mile and loaded freight car miles per loaded freight train mile.

The method followed in each succeeding road is the same as in the case of the Atchison, and this exhibit is put in as further corroborative of the increase in the train load, the locomotive load, and if there are no questions, I will submit it without further comment.

Mr. Byram: Is there a summary somewhere to show the total?

Mr. Lauck: No, sir; I did not have time to make a summary. I concluded all the roads for which I could get information, and at that time I found I could not go any further on account of the limitations of time.

Mr. Stone: That concludes the reports?

Mr. Lauck: That concludes the direct or constructive argument as to an increased productive efficiency, without any reference to any gains arising from that in terms of dollars and cents, or any reference to remuneration of capital. We have exhibits to follow, showing the revenue gains arising from increased productive efficiency, and I have also made an attempt to show that, after all increased operating costs have been paid, a sufficient amount is available to remunerate the additional capital investment and still leave an amount sufficient to reasonably grant compensation to labor. I do not know whether Mr. Sheean would like that to go in or not, before he cross-examines.

Mr. Sheean: You say based upon this, and in connection with this, you have extended some other tables?

Mr. Lauck: I have quite a number of other exhibits. The next point I would take up would be revenue gains arising from increased productive efficiency.

Mr. Sheean: That is, revenue gains arising from the productive efficiency to which you have adverted here?

Mr. Lauck: Yes, sir.

Mr. Sheean: If it is entirely agreeable to you, I think I would rather have the whole picture.

Mr. Lauck: I think it would be fairer to you to have the whole thing.

Mr. Stone: We will take up the other side, of course, from the operating efficiency standpoint.

Mr. Lauck: I had forgotten something, yes, sir. I am glad you called my attention to it.

Mr. Stone: I would say that our next two exhibits will bear upon the same subject and are taken from the other angle of the question, from the operating side of the railroads, showing what they have done and what they expect to do in the next few years.

(The documents so offered and identified were received in evidence and thereupon marked "Employes' Exhibit No. 26" and "Employes' Exhibit No. 27, January 6, 1914," respectively.)

Mr. Lauck: Exhibit No. 26 is entitled "Gains in Operating Efficiency" and consists in quotations from the annual reports of railway presidents to the stockholders. My object in submitting this is to attempt to put an official sanction from the railroad presidents on the theory of productive efficiency as so far advanced, by quotations from their annual reports.

Mr. Stone: You do not show quotations from all the railroads, do you?

Mr. Lauck: No, sir, just from a few. These quotations consist of reports from the presidents, in making their written reports to the stockholders relative to the operating efficiency of the roads, making mention of the gains in loaded car miles and loads per car and gains in revenue freight train loads, and the gains in moving a larger amount of traffic with a smaller number of freight train miles, which of course is the object of economical railroad management from an operating standpoint. All the quotations are typical of the one appearing on page 1, from the Atchison, where the president of the Atchison, in 1909, states that "The average tons of freight carried per freight train-mile increased from 354.97 to 366.06, or 3.12 per cent." Meaning by that, during the year 1909. I hardly think it is necessary for me to read these.

Mr. Stone: I think you had better read a typical one. If the others are alike, there is no use burdening the record with all of it.

Mr. Lauck: I was trying to hunt a real good one to read, but I will just read one at random. Take the report of the Chicago Great Western, for 1913, page 2, at the bottom of the page.

At page 13 of the annual report of the president, the statement is made:

"* * * as compared with four years ago, the train mileage has decreased 22.05 per cent while at the same time there were increases in tons per train mile of 58.72 per cent, in freight revenue 31.76 per cent and in revenue per train mile 68.72 per cent. * * * The amount saved by the reduced freight train mileage in 1913 from that of 1909 is, in round figures, $673,000."

I will read from page 4, the Missouri Pacific Railway. The annual report for 1903, page 34, the president says:

"The revenue train load has been brought up to 302.5 tons from 280.7 tons last year, while the total train load (Revenue and Company freight) increased from 309.6 tons the previous year to 330.8 for the year 1903, an increase of 21.2 tons per train."

You will notice there, too, apropos of the discussion we were having this morning about the company freight, that the statement is made there which is not made to the Interstate Commerce Commission, including company freight, the freight train load was 40 tons higher than the report of the train load to the Interstate Commerce Commission, which is the revenue train load.

"The loaded cars per train increased from 18.31 in 1902 to 18.57 in 1903. The tons per car Revenue and Company freight show an increase from 16.9 tons per car in 1902 to 17.8 tons per car in 1903.

"It will be of interest to note the steady increase in train load and car load since the year 1898, as shown below."

Then follows the table showing for the year 1898, which I did not transcribe.

Those quotations are typical, and I submit them as corroboration from the railroad presidents of the steady gain in the productive efficiency, as exemplified by increased train loading, increased car loading, moving a larger volume of traffic with fewer train miles.

Mr. Stone: Do you find in all these presidents' annual

reports to stockholders, that they also include company freight in showing their results?

Mr. Lauck: No, sir; some railroad presidents make reference to it and some do not.

Mr. Stone: I see on the next page that the Northern Pacific does.

Mr. Lauck: I mentioned that here because it was interesting in connection with what we discussed here this morning. What page is that?

Mr. Stone: Page 5. They talk about including company freight—they give the tonnage.

Mr. Lauck: Some of them do and some of them do not. What year is that?

Mr. Stone: 1913.

Mr. Lauck: There you see the freight train load, including company freight, was 116 tons greater than the revenue freight train load, to which we are confined in our presentation of productive efficiency. The revenue freight train load in the year 1913, on the Northern Pacific, was only 541.62 tons, while the total train load, including company freight, was 637.11 tons. This latter figure does not appear, or is not required of the railroads by the Interstate Commerce Commission, and of course we had to use the smaller figure in working out the productive efficiency.

Mr. Burgess: Referring to the Northern Pacific, the first item there which shows the enormous reduction in operating expenses, in round numbers, $3,000,000, was chargeable to labor. Can you explain that to us?

Mr. Lauck: On page 5?

Mr. Burgess: Yes, sir.

Mr. Lauck: Operating expenses were reduced $6,000,000, of which $3,000,000 was in labor and $2,000,000 in material.

Mr. Burgess: Yes.

Mr. Lauck: Well, of course, that may have been due to increased operating efficiency. I am not familiar with the operating conditions on that road in 1911. It may have been due to decrease in traffic, and consequently a lack of necessity for employing the same amount of labor, just like in 1914, the labor costs have fallen off in the aggregate. That was due to decreased handling of traffic; but, on the other hand, there is a

steady decline in labor cost, of course, per unit of output, due to the heavier train load and heavier locomotive load. I am unable to say.

Mr. Byram: There isn't any comparison made here.

Mr. Lauck: No, sir.

Mr. Byram: Merely the statement of the fact that a certain portion of the total expense was for labor.

Mr. Lauck: The statement is made that there was a saving of $3,000,000 for labor, which may have been due to reduced traffic. It would hardly seem that they could save $3,000,000 in one year on productive efficiency.

Mr. Stone: The same year the revenue train load increased?

Mr. Lauck: Yes. There was some saving made in that way, as there is in all years, on a well managed road. That is by increasing the train load, although the aggregate amount for labor outlay increases, the cost per unit handled decreases. That is the object, of course.

Mr. Burgess: As I recall, there was no panic in the year 1911, yet this president's report shows that the operating expenses were reduced from $6,000,000, and $3,000,000 of that sum was a saving on labor.

Mr. Lauck: Yes. If there was no material reduction in the traffic, it would certainly indicate that, but there was a decrease of 618,000,000 tons in revenue freight. I don't mean to take issue with your point, but to get all the facts out.

Mr. Burgess: That is what we want, the facts.

The 4,000,000,000 tons of revenue freight were moved one mile, a decrease of 618,000,000, or about 20 per cent the traffic falls off.

Mr. Stone: 11 per cent.

Mr. Lauck: 11 per cent?

Mr. Stone: That is what it says.

Mr. Lauck: 11.41 per cent from the preceding year. So it is lower, evidently due to increased traffic, and some gains which the Northern Pacific have steadily made, of course, in reducing labor cost.

Mr. Burgess: Reading the next paragraph, we find the revenue train load increased from 429.28 to 461.45 tons. Would

not that be materially affected by the saving of labor in the first paragraph?

Mr. Lauck: Yes, that would reduce the outlay.

Mr. Byram: This is only one branch. These are total operating expenses, including track labor and everything?

Mr. Lauck: Sure.

Mr. Byram: So that this reduction—

Mr. Lauck: Oh, not to that extent, no, sir. Of course if they could reduce it in labor that much each year they would soon eliminate operating expenses. But labor contributed to that result, just as in the present year less traffic is being moved, and there is less cost for engineers and firemen, still there is a gain in the effective efficiency of labor due to increase in the train load as shown in Exhibit 25.

Mr. Stone: I understand, Mr. Lauck, these are simply quotations. You know nothing in regard to the figures. You have not checked them up. You take this for granted they are correct because they are from the president's report?

Mr. Lauck: Yes, sir.

Mr. Stone: You find quite a difference in the statements to the press and the statements to the stockholders in some of these railroads, don't you?

Mr. Lauck: Well, naturally the man in charge of the railroad points with pride to the operating results achieved during the past year and makes as good a showing for the road as he possibly can, in his administration.

Mr. Stone: Anything more on this exhibit?

Mr. Lauck: Not unless there are some questions.

The Chairman: These reports go to the public, don't they?

Mr. Lauck: Yes, they are freely distributed to the public. I have a set of these reports which I procured from the presidents.

Mr. Stone: You have been more fortunate than I have been then. I have been able to secure only a few.

Mr. Lauck: Well, you are well known. I am not.

Mr. Stone: So I don't think they are distributed very freely.

Mr. Lauck: I would like to have the annual reports for 1914.

I am going to read some of these. I am not going to read all of them. I just want to further corroborate the period of depression, the effect upon the locomotive firemen and enginemen in the way of increased productive efficiency. These are the annual reports of the presidents of railroads to stockholders for 1914. I have had no opportunity to prepare an exhibit from them, but all of them practically corroborate the idea they put forward there so far as increased train loading and car loading and increased locomotive load.

The Illinois Central is especially good in that regard and has some diagrams which I think are much better than the ones we presented. Turning to this diagram, this represents the increase in the average train load from the year 1905—the white bars; the black bars represent the increase in the locomotive load. And, then, turning to this side, here is the tons of revenue freight carried one mile from 1895 to 1914, here are the decreases in revenue locomotive—miles run by locomotives in freight service. You have a decrease in locomotive miles with an increase in train mileage transported.

I have already referred to President Mudge's annual report in the Rock Island for the year 1914, in which he speaks of the remarkable gains made in operating efficiency. On page 48 of that report there is a table showing, for the Rock Island Lines, the average weight on drivers, tons of locomotives, which increased from 60.19 tons in 1910 to 66.95 tons in 1914. The average tractive power of a locomotive used by the Rock Island in 1910, according to the report of the president, was 26,690 pounds, and in 1914, was 29,850 pounds.

Mr. Sheean: By the way, Mr. Lauck, in that connection, I notice that Mr. Mudge ventures a suggestion as to why, notwithstanding this increased operating efficiency, the results are no more favorable.

Mr. Lauck: Yes.

Mr. Sheean: At page 12. Do you concur in his view there, as to whether any of the matters enumerated by him may have contributed to bring about the showing that, notwithstanding this increased economy on the part of the management, it has been impossible to offset adverse conditions referred to and enumerated by him?

Mr. Lauck: I think partly, yes, sir; I do not think fundamentally.

Mr. Sheean: How many of the things there do you concur in?

Mr. Lauck: Well, reduction of passenger, freight and express rates, and inadequate mail pay for added service. I do not know whether the Board would care for any expression of opinion on my part.

Mr. Sheean: I just wanted to get this matter clear. You said you could not account for it all. Just so that we may get it in this same connection, if you have no objection—

Mr. Lauck: I have no objection.

Mr. Sheean: Mr. Mudge says "The conclusion is indisputable that the primary and fundamental causes for the failure of your company to earn its dividends are:

(1) Reduction of passenger, freight and express rates, and inadequate mail pay for added service,

(2) Increased rates of wages,—

Mr. Lauck: I do not concur in Number 2.

Mr. Sheean: You do not concur in that?

Mr. Lauck: No.

Mr. Sheean: (3) Increased expenses due to legislative enactment, such as:

(a) Sixteen Hour Law for train, engine and yard men,

(b) Nine Hour Law for telegraphers,

(c) Full crew bills,

(d) Safety appliance acts,

(e) Electric headlight bills,

(f) Laws requiring extra trains run in case of thirty minute delay in regular trains,

(g) Boiler inspection law,

(h) Steel postal car requirements,

(i) Semi-monthly payroll acts,

(j) Employes' compensation acts,

(k) Laws and commission orders requiring absolutely unremunerative daily train service,

(l) More than 300 other laws passed in the last five years in the fourteen states through which your lines operate, increasing expenditures with no offsetting earnings.

(4) Increased taxes per unit of value,

(5) Increased cost of capital funds."

Do you think any of those may account for the fact that the showing on the Rock Island is unsatisfactory, notwithstanding the economy shown both in train loading and in train haul?

Mr. Lauck: I think that all of those factors have contributed to increase the operating costs of the Rock Island, and thus to reduce the gains which they had secured by productive efficiency. I do not think that they are the fundamental cause of the Rock Island's difficulties. I think that they have added to the cause, but I think the productive efficiency would have far more than paid these added costs and left a remarkable gain, if the Rock Island had been properly financially managed.

Mr. Sheean: In your productive efficiency this morning, as I understood you, there was no consideration of the cost of financing, at all. In the tables we have thus far had, you are treating of these roads as if they had no capital, in your first figures, are you not?

Mr. Lauck: Oh, yes.

Mr. Sheean: Treating them on the comparison you have made, as if there was no dollar invested?

Mr. Lauck: Yes.

Mr. Sheean: And I was referring back to that.

Mr. Lauck: Of course, I could not discuss the question unless we took up the finances and the money involved. I think that the Railway Age Gazette answered that very effectively in the issue of November 27, 1914.

The Railway Age Gazette, which is a rather leading railway publication, answered this, or made editorial comment. I was much interested in President Mudge's review, from a productive efficiency standpoint, and also from the standpoint of the finances of the Rock Island, and of course, it seemed to me, from a financial standpoint, that that was what was fundamentally the matter with the Rock Island. But the Railway Age Gazette comments on this report of President Mudge, and not to take up the time in reading it, it says that the Rock Island's difficulties have been due to the fact—it makes comparison of the Rock Island and the Burlington, and says that the Rock Island has not put its funds back into the property as it should, arising from this productive efficiency. If so, it seems to me that that is the correct point of view. If it had,

and if it had used the revenue gains arising from increased productive efficiency properly, instead of using them to pay returns on two classes of holding companies, which represented no tangible investment in the property, and if its resources had not been dissipated by enormous fees and payments to different officials of the Rock Island, as was recently brought out in the Interstate Commerce Commission development, I think the Rock Island would be in even better shape or in as good a shape as the Burlington.

Mr. Sheean: Well, Mr. Lauck, I understood you to say that you disagreed with the second statement of Mr. Mudge, that this result had been at all brought about by increased rates of wages?

Mr. Lauck: Yes, sir.

Mr. Sheean: I notice in this same report he makes the statement, on the same page: "The same rates of wages paid in 1902, if applied to the traffic hauled in 1914, would have shown a reduction of $4,273,222.38 in operating expenses." Have you checked or verified whether or not that is correct, that on the traffic of 1914, if the rates of wages for 1902 had been applied, there is a difference of over $4,000,000?

Mr. Lauck: I have not checked that, but I do not think that would be correct, no, sir.

Mr. Sheean: You do not think that would be correct?

Mr. Lauck: No, sir.

Mr. Sheean: Then, if Mr. Mudge, or those who prepared or compiled this report, show that to be a fact, the deduction which you have made as to the increased cost of wages would be wrong, if those figures are correct and subject to verification?

Mr. Lauck: Yes, I think that that would be true, and I would be glad to have them verified, and presented; but my point there would be that on the Rock Island, as well as all other roads, of course, the outlay for labor has increased for locomotive engineers and firemen, except in the past year, because of the year of depression; there has been less outlay for engineers and firemen during the past year because of the industrial depression, and not the handling of traffic, which is obvious, of course.

Mr. Sheean: But he speaks only of the rates, if the same rates were applied to this traffic in 1914.

Mr. Lauck: Yes, exactly. Now, if that is true, I think it

would be a very strong point against us; but, as I say, I cannot accept it until I have verified it.

Mr. Stone: Is it not a fact that in 1902 they were using a small type of engine and pulling a very small train, while in 1914 they are using a large engine and pulling 3,500 to 4,000 tons per train?

Mr. Lauck: Yes, and that is just the point. If they paid the same rate of wages, you will find the point we are making, or will make, rather, is that the labor cost per unit of output has decreased. They might pay the same rates, if they did the same work, but it would not require the same number of men to put the freight over the Rock Island as in 1902; it would not require as many freight train miles or locomotive miles.

Mr. Stone: Supposing it was true that, applying the earnings of 1914 on the same rate as paid in 1902, on the traffic, they made that saving, what would be the result if you applied the earnings of 1914 to the capitalization in 1902? It would show a more marked difference than perhaps anything else, would it not?

Mr. Lauck: It should, yes, sir; it should show a large return—you mean, not a theoretical case, but the actual case?

Mr. Stone: The actual case, I am talking about.

Mr. Lauck: Of course, it would show a remarkable gain. The point, though, is, that Mr. Sheean brought up, and which was further mentioned by you, if the same rates of wages were paid, you would get a much larger return in 1914 than you would in 1902, therefore, you would be more than amply compensated by your increased revenue?

Mr. Sheean: This statement is applying the wage schedule in effect in 1902 to the operations of 1914.

Mr. Lauck: Exactly. Then you would have to neglect the advances in operation, if you are going to get the same results, would you not?

Mr. Sheean: Well, do I understand, that you understand that changes in operation are provided for in the schedule, so that you cannot take the wage schedule of 1902 and apply it to the operations today?

Mr. Lauck: No, I understand now, a man gets a certain amount for running a mile or working an hour. In 1902 he got less. Now, he operates a heavier locomotive and pulls more ton

miles. He, therefore, contributes more to the railroad at his increased rate than he did before; hence, you might increase the operating costs or outlay for engineers, but the resultant gains would be much greater than they would under the old schedule.

The Chairman: Have you anything further, Mr. Sheean?

Mr. Sheean: No.

The Chairman: You may proceed, Mr. Lauck.

Mr. Lauck: Just to bring out the Rock Island one step further, the Railway Age Gazette says, after commenting upon the report, on page 97 of the issue of November 27, 1914: "There is something here besides adverse legislation and general conditions to explain why the Burlington, affected by the same general conditions and by adverse legislative interference, has been able to offset these conditions while the Rock Island has not. The holding company device, per se, is not an adequate explanation. It was, rather, the way in which this device was used. The great and fundamental difference is that the Burlington, besides spending the proceeds of the sale of capital securities on additions and betterments to its property"—and the Rock Island, of course, did not have any proceeds to invest in the property; it simply distributed them—"has made an additional investment in the property through surplus income of $145,000,000."

That is all I have on that point.

Mr. Nagel: Is the name of the author given in that article?

Mr. Lauck: No, sir; it is an editorial comment. I would be glad to let you have it, if you wish (handing paper).

Mr. Burgess: Please turn to table 6, the Great Northern Railway.

Mr. Lauck: What exhibit is that, please?

Mr. Burgess: This is Exhibit 26. I presume we can all accept the statement of President Hill without question, but can you explain in detail the statement wherein he shows a 10.99 per cent reduction in transportation expenses and not the general payroll, with only 2.26 per cent reduction in train mileage?

Mr. Lauck: What page is that?

Mr. Burgess: Page 3, table 6, Great Northern Railway. President Hill calls attention to the fact that transportation

expenses decrease 10.99 per cent with the small reduction of 2.26 per cent in the total train mileage. Now, here is a very, very heavy reduction in the transportation expense; no general payroll there, with but a slight reduction in the train mileage.

Mr. Lauck: I think that is primarily due to increased efficiency in operation of trains.

Mr. Sheean: Well, it might be on transportation, they might save it in the mere price of coal, might they not? The only item that is reported is the transportation item, is it not, transportation expenses, and transportation expenses as classified by the Interstate Commerce Commission, include all the salaries, all the supplies and all the coal?

Mr. Lauck: For actually getting the traffic over the road.

Mr. Sheean: And loss and damage claims, reduction in loss and damage claims.

Mr. Lauck: Are you reading conducting transportation?

Mr. Sheean: Transportation expenses was the item I think, which he said shows a saving here. It consists of a variety of items, does it not?

Mr. Lauck: Yes, quite a number; oil, lubricants, labor—

Mr. Burgess: Well, the saving of coal and oil and accidents and damages are all interwoven with the productive efficiency of the engineers and firemen, are they not?

Mr. Lauck: They are all interwoven with the operating efficiency of the road.

Mr. Byram: There might be a reduction in the price of the coal, might there not?

Mr. Lauck: Oh, yes.

Mr. Burgess: But there has not been.

Mr. Sheean: Have you not the report of 1909 right before you, so you can see just where this came in?

Mr. Lauck: To the Interstate Commerce Commission?

Mr. Sheean: Yes.

Mr. Lauck: I have 1914 somewhere.

Mr. Sheean: It is the annual report of the Great Northern. I thought you were reading from them.

Mr. Lauck: I had that for 1900—

Mr. Sheean: And nine?

Mr. Lauck: No, 1914. I think it has been characteristic of the operation of all the railroads, all that have been efficiently

managed, that the transportation ratio has declined, although the total ratio—the total operating expense has advanced; due to economies and efficiency in handling the actual—conducting the traffic over the road. I notice in reports of railroad presidents, most of them comment upon that and upon the reduced cost of lubricants, and a great many railroads, during the past year, comment upon the reduced labor cost of engineers and firemen per locomotive mile than in previous years, which would all come in the transportation cost.

Mr. Burgess: We would like an explanation, Mr. Lauck, along the same lines, on the Chicago Great Western. We find the productive efficiency very highly reflected in that president's report.

Mr. Lauck: Yes, sir, the report for 1911, or 1912, or 1913?

Mr. Burgess: 1911 or 1912. 1911 in particular.

Mr. Lauck: There has been, I think—during the present year, it has been a matter of comment that the president has—of the Great Western, has been especially prolific in speaking of the increased productive efficiency of that road? At the same time—

Mr. Sheean: Now, if you can find the words, "productive efficiency" in the report of any railroad president there—

Mr. Lauck: "Efficiency" I will use.

Mr. Sheean: I wish you would call attention to it as you go along.

Mr. Stone: Well, we will admit that the president produced it all himself.

Mr. Sheean: If they do use that term anywhere, I would like to know the president that uses the term.

Mr. Lauck: I know he speaks of the efficiency of operation, which is the same thing, to my mind. But, as I was going to add, he takes the gloomy attitude that the other railroad presidents take, due to these other factors which Mr. Sheean has mentioned, that is, he points with pride to the improved efficiency of the road, and then says, "Despite all these things we are confronted with increased cost of operation or decreased showing."

The president of the Chicago Great Western for 1914, also makes a comparison as to the efficiency of the road, based on 1909 to '14, and, for instance—

Mr. Park: When were they in the hands of the receiver? Was it 1909?

Mr. Lauck: The Great Western was reorganized in 1906, I think, or 1909. 1906 I think it was.

Mr. Park: They spent large sums of money the last few years in elimination of curvatures and rectification of grades, changing the physical condition.

Mr. Lauck: I believe we pointed out when we were going over these exhibits the remarkable gains that they had made, and they have just—I think June 30th of this year—emerged from the reorganization into—the voting trust has passed away, and the submerged stock is now entitled to the dividends—cumulative.

Mr. Sheean: Do you know how many million dollars was put in between 1909 and 1914 on which there has not as yet been any return, and which is just beginning to emerge from this reorganization?

Mr. Lauck: I know how many million dollars was not put into the reorganization.

Mr. Sheean: Well, do you know how many million dollars in dollars?

Mr. Lauck: No, I do not know that.

Mr. Sheean: That is easily ascertainable from the report of the Interstate Commerce Commission.

Mr. Lauck: Yes, I can give you that. I have it here, but I don't, of course, recall it.

Mr. Sheean: But the elimination of grades and all these things that took place since reorganization cost money, did they not?

Mr. Lauck: Yes.

Mr. Sheean: And a very large amount of money?

Mr. Lauck: Yes.

Mr. Sheean: But you don't know how many million dollars represented in that way.

Mr. Stone: They poured in enough water so it won't get dry for a few years, anyway.

Mr. Lauck: Of course, the road was grossly overcapitalized at the time of reorganization. I think about 72 per cent of fictitious capitalization was injected into the road, and the underwriting syndicate made about ten million dollars, and J. P.

Morgan & Company got five hundred thousand dollars fee for reorganization. Since that time, I think an effort has been made to develop the productive efficiency, the result of which will be the payment of dividends on these securities which were issued at the time of reorganization.

Mr. Sheean: They haven't got enough productive efficiency as yet to give any return on the money that was invested, outside of the water?

Mr. Lauck: Not yet, I think.

Mr. Sheean: They are beginning to emerge where they have some hope of getting some return on the actual money that went in?

Mr. Lauck: I think that is true, and that they will, in the course of time, even be able to pay something on the 72 per cent fictitious capitalization, but that will be used as an argument against any advance in wages, as the productive efficiency will be absorbed by this fictitious capitalization.

Mr. Sheean: At the present time to use only such argument as is made now, the real money that has gone in has today no return on it.

Mr. Stone: That 72 per cent fictitious capitalization was sold on the open market and went into the hands of innocent purchasers, and the people who floated this reorganization scheme got real money for it, didn't they?

Mr. Lauck: I think when the Chicago Great Western was reorganized, if I remember correctly, J. P. Morgan was called in as reorganization manager, or his firm was, and they paid him a fee, for which I was never able to ascertain that he performed any services—all he did was to sell $18,000,000 of first mortgage bonds. The road had never been mortgaged before this reorganization, and it was a comparatively simple thing for anybody to sell $18,000,000 of first mortgage bonds, and for that he received a fee of $500,000.

Mr. Stone: In addition to the commissions?

Mr. Lauck: I think the syndicate which he represented, and which floated the road, made about $6,000,000, if I remember correctly; but that, of course, is beside the question. I believe we had up your question, did we not, Mr. Burgess?

Mr. Burgess: I think you answered it.

Mr. Lauck: There has been a remarkable development of

efficiency on the part of the Chicago Great Western in recent years, as shown by all of its reports, both of the president and to the Interstate Commerce Commission.

Mr. Stone: Is there anything further you want to say?

Mr. Lauck: I have quite a number of quotations, but I hardly think it is worth while to take up the time of the Board with those. The only idea I had in presenting these was to get corroboration for efficiency in operations.

Mr. Stone: Your next exhibit will bring that out more forcibly yet, will it not?

Mr. Lauck: Yes. That is Exhibit 27.

Mr. Stone: Are you ready to take that up?

Mr. Lauck: Yes, sir.

Mr. Stone: I would like to ask the particular attention of the Board to this Exhibit 27, "The prospect of future increases in the productive efficiency of locomotive engineers and firemen." These are the opinions of the leading presidents of the western railroads as to the future increases in freight train loads. It has been five years since we had a wage movement in the western territory, and we can at least look forward for a year or two before we get into another one, if we get through with this one in that time. We want you to note particularly what they expect to do between now and 1918. You may proceed, Mr. Lauck.

Mr. Lauck: The object in presenting this exhibit is to show, as I have stated in a brief introduction, that the railway presidents of the western roads expect a further increase in freight train loads, and expect a continuance of the tendency which has been dominant during the past thirteen years. This exhibit is made up from quotations from the Railway Age Gazette. The Railway Age Gazette sent out a schedule to the railway presidents, asking them what they thought of the prospects of further increases in train loads, and published a number of the replies received. Among those are a number from presidents of eastern railroads, which I have included, so as not to break the quotation, but which of course are not apropos at the present time.

Mr. E. P. Ripley, the president of the Atchison, Topeka & Santa Fe, on page 1 of the exhibit, says:

"Our customers demand time and at least one freight train must be run over practically every branch of the road every

day, whether there is anything for it to haul or not, and in this fact you have one of the prime causes for our inability to load our freight trains to anything like a maximum when taken as a whole. The question of the amount of freight to move and the time in which we are given to move it has more influence upon the train loading than most anything else in certain parts of the country, and applies to all roads in the West at least. I should place as the second factor in train loading the tractive capacity of engines and of draw-bar apparatus. The former has, I think, about reached its economic limit unless some other motive power is devised. The latter is also, I think, about at its maximum, although both of these, of course, depend largely on the grade line."

Then the editor of the Railway Age Gazette comments by saying:

"Mr. Ripley believes there should be a considerable increase in the Atchison train load over that obtained in 1913."

Mr. Daniel Willard, the president of the Baltimore & Ohio Railroad—I will read what he says, because I think the Baltimore & Ohio Chicago Terminal is a party to this proceeding. He says:

"We expect to bring our average train load, including company freight, up to 700 tons, but I would not like to say just when we expect that to be accomplished."

Then the editor notes:

"It will be noted from the table in this article that the Baltimore & Ohio had a 50 per cent increase in loading between 1908 and 1913, most of which took place between 1910 and 1913."

Referring to page 2, Mr. S. M. Felton, the president of the Chicago Great Western, says:

"We have about reached the limit unless we should make further grade reductions or purchase still heavier power or there is a marked change in the direction of traffic movement. The purchase of heavy power, large capacity cars and grade reductions since the reorganization in 1909 brought about the increase in the train load to which you refer."

Then, on the same page, Mr. W. A. Gardner, the president of the Chicago & North Western, says:

"There is no reason why we will not increase the North Western load at least 75 tons in the next five years, and, perhaps more. * * * We do not look for any particular increase in power, or the capacity of cars. The greatest difficulty nowadays is to utilize the capacity of all sorts of equipment except coal carrying. It is not unlikely that some of the roads which have a very large coal tonnage will go to a 75 or even 100 ton car; it will have to be six-wheel trucks, however, instead of four."

Mr. Miller, of the Chicago, Burlington & Quincy, on the same page, just above Mr. Gardner, says:

"I do not feel that we have yet reached the limit of our train load, and hope that it will substantially increase during the next five-year period. Upon certain divisions, where the character and volume of traffic permits it, we are today handling trains of much heavier tonnage than these average figures,—"

That brings up a point we were talking about, train loads on the branch lines and different divisions, and corroborates the discussion we had on that. To continue the quotation:

"—we are today handling trains of much heavier tonnage than these average figures, and it is evident, therefore, that the average figures have no direct relation to the tractive capacity of engines, strength of bridges, length of sidings, etc. * * * The only apparent limit to a continued increase in the average train load, is the growth and the volume of business offered for transportation, and the financial ability of the company to improve its property and facilities in order to increase its train load. * * * I do not think that there is any limit yet apparent, which the ingenuity and ability of mechanical men cannot overcome, if the necessary money is provided and traffic in sufficient volume is found to justify the expenditure."

President Mudge, of the Rock Island, says, on the same page:

"On the Rock Island there is still opportunity for a considerable increase in the revenue train load from that obtained

in 1913. I believe that the increase between 1913 and 1918, will be at least equal to that in the last five years, but this will depend largely upon the ability of the company to finance grade revision work. The traffic on several of the important lines has now reached the volume to warrant these grade revisions. A large proportion of the Rock Island traffic is of that nature requiring expedited movement."

Mr. Park: Now, read what Mr. Kruttschnitt says on the next page. Wouldn't that indicate that it is more in the physical characteristics—just read what Mr. Kruttschnitt says.

Mr. Lauck: Yes, sir, I will. Is that on page 3?

Mr. Park: Page 4.

Mr. Lauck: Mr. Julius Kruttschnitt, of the Southern Pacific:

"There is not much opportunity left on the Southern Pacific for increasing the trainload by reducing grades. During Mr. Harriman's administration it was the policy to reduce grades and to use the engines of smaller capacity. Now, larger capacity engines are required to make gains in train tonnage figures. In the maximum units of engines now in use I believe the limit of tractive capacity has about been reached, for rails, bridges and the axle-bearing load are already under a very great strain. On the Southern Pacfic an important factor in train tonnage is the increase in speed required by shippers. We are gradually trying to work up to a larger load even with the more difficult time schedule. Again, the necessity for running mixed trains on branch lines cuts tonnage as, frequently, the train load on these branches will be only from 80 to 90 tons, against 700 tons on the main line."

I would like to call attention to that point, too, in connection with the report of the Interstate Commerce Commission. "Car loading is still an undeveloped science, but it has its limitations owing to the long usage of certain units of car loads by shippers. Eventually the Southern Pacific ought to have a 450-ton train load."

Mr. Stone: The fact remains that it does have on the main line a 700-ton train load now. I wish you would turn back and read Mr. Markham of the Illinois Central on page 2.

Mr. Lauck: Just pardon me a moment, Mr. Stone. In connection with what Mr. Kruttschnitt says as to 700 tons on the main line, I would call your attention to the table, page 5, where the Southern Pacific reports 389 tons of revenue freight for the year 1913, showing that when you average it up the average is much less than it is on particular divisions and particular lines, and removing the seeming inconsistencies between some of the testimony which has been presented, it seems to me, by the men who spoke of immense train loads, which apply to particular divisions, and which do not measure up to the report of the road as a whole.

Mr. C. H. Markham, of the Illinois Central:

"I think it is a fact that the average tractive force of engines in service is capable of permitting of very considerable increase in train load for some years to come. We all have in service a comparatively large number of light capacity engines, and on the Illinois Central there are a large number of such engines, which will be retired whenever the cost of repairs reaches a certain figure. For the first half of the present fiscal year the Illinois Central train load has increased 5 per cent over the same period of the last fiscal year."

Mr. Stone: Now, Mr. Schaff.

Mr. Lauck: Mr. Schaff was the Missouri, Kansas & Texas, page 3:

"The increase in revenue train load during the next five years will depend largely upon our ability to replace the light engines with heavier power. Our plan is to replace all the main and heavy traffic lines of the Missouri, Kansas & Texas with heavy rail and heavier engines, and I think we ought to secure a 15 or 20 per cent increase in the revenue train load before 1918. Should there be a substantial increase in the northbound business, our train load might increase 30 or 40 per cent."

Mr. B. F. Bush, president of the Denver & Rio Grande and Missouri Pacific, page 3, says:

"It is reasonable to assume that the revenue train load during the ensuing five years will equal the established ratio of increase and probably exceed it. Further improvement necessarily depends on the relative tonnage there may be to handle, increasing the length of passing tracks, purchase of other locomotives of a capacity that would further increase the average

tractive power per engine, the installation of heavier bridges as needed, some further reduction of grades, and the double tracking of lines as the increase in the traffic warrants."

Then the table on page 5, the interesting point in general is that comparing of percentages of increases; it will be noticed that there has been proportionately a greater increase in the train loading during the past five years than there were in the preceding five years. That is, the percentages of increase, as a rule, are greater for the period of 1913 over 1908 than they are of 1908 over 1903. There are some exceptions to that, but as a rule they run in that way.

Mr. Stone: But all the testimony of these men at the head of these great companies goes to show that men in transportation service that believe they are up to the limit of human endurance now can expect a still greater burden in the coming years?

Mr. Lauck: Yes, sir, almost without exception. There are some exceptions. They all think the train load will be increased, and probably will be increased.

Mr. Sheean: The West is not yet up either to the South or the East in train loading, is it?

Mr. Lauck: I don't know about the South. It is not with the East.

Mr. Sheean: It is not even up to the South, is it? Or have you compared?

Mr. Lauck: I have not compared. I will accept that statement.

Mr. Sheean: Well, you do know that in the East it is not anywhere near—it is very much heavier in the East?

Mr. Lauck: Yes.

Mr. Sheean: And lower rates are paid there than in the West to engineers and firemen?

Mr. Lauck: Yes.

Mr. Burgess: Won't you please read the Virginian Road. That is in the South.

Mr. Lauck: The Virginian Railway is the leading railway of the country. That and the Carolina, Clinchfield & Ohio.

Mr. Burgess: Yes, but the Virginian Railway has a clear statement. The last page, at the foot of the page.

Mr. Lauck: Mr. Raymond DuPuy of the Virginian Railway says:

"The original program for the Virginian with its .02 per cent grade line on two of its operating divisions, was to handle 80 loaded 50-ton cars in a train. But we developed a Mikado engine a little heavier than our first Mikados, and equipped them with superheaters and now handle 100 cars per train as easily as 80 formerly. Our passing tracks were built for the 80 car trains. By lengthening them out to fit the longer trains hauled by the Mikados, we can increase tonnage over the low grade divisions by 25 per cent." Speaking generally, Mr. DuPuy believes that the Mallet engine will be used more freely for road service, and that this will raise the average train load. He finds much to criticize in the center sill construction of cars, which he believes is not strong enough. This opinion he justifies by a bad order record of less than .06 per cent for Virginian cars of special type, making a mileage of 12,000 miles per year and handling the heaviest train load in the country, against the normal average of 'bad orders' of from 3 to 5 per cent."

This latter is the statement by the editor.

Mr. Park: Mr. Burgess, that is train hold, is it not, not train haul? That is, those heavy trains on the Virginian road are held down by grade.

Mr. Burgess: I beg your pardon.

Mr. Park: I don't know anything about it.

Mr. Burgess: I beg your pardon.

Mr. Park: Don't they take the cars down to tide-water?

Mr. Burgess: Yes, but you understand the division you are talking about, holding them down the mountain, is on only one division, but the line from Princeton, West Virginia, to Sewell's Point, a distance of about 200 miles.

Mr. Lauck: 400 miles.

Mr. Burgess: 400 miles, where they handle these hundred car trains.

Mr. Lauck: And the Carolina, Clinchfield & Ohio is similar, which is built from South Carolina northward from the coal fields, up through Tennessee.

Mr. Burgess: The Carolina, Clinchfield & Ohio is a heavy road, that is, when the conductor gives a signal he lies down; has four engines, two ahead and two behind. In the event of an air hose bursting the conductor is down, and probably would suffer less injury than if he was thrown down.

Mr. Park: So they stay on the ground at the start!

Mr. Stone: This quotation here from Mr. Miller of the Wabash, that second paragraph. Who is that? Mr. Miller, or is it the editor? In his summing up, page 5.

Mr. Lauck: That is Mr. Miller.

Mr. Stone: It is given as a quotation. I think it must be the editor, because he speaks of the "strong jury."

Mr. Lauck: Oh, the last paragraph, yes. I was reading the first; that is the editor. One page 5—I would make that correction—on page 5 of this exhibit the paragraph beginning just preceding the table says "What has been accomplished in the past decade is—"

Mr. Stone: No, the paragraph above that, Mr. Lauck, is the one I refer to.

Mr. Lauck: Oh, "with such a strong jury so unanimously of the opinion that the increase in train loading will continue, it is conservative to place the probable average for the country by 1918 at from 575 to 600 tons per train."

That is given in quotation marks, but it is really comment. It should be in double quotes. It is the comment of the editor of the Railway Age Gazette on all the preceding returns from his inquiry, on which he predicts a train in 1918 of 600 tons.

Mr. Stone: Anything further on that exhibit?

Mr. Lauck: Nothing further, if there are no questions.

Mr. Stone: Do you want to introduce this other group of exhibits now, 28, 29 and 30, "Railway Gains"?

Mr. Lauck: I would like to look at this just a minute.

Mr. Stone: Mr. Chairman, we would like to introduce these next exhibits. They were prepared like Exhibits 21, 22 and 23. They are in three periods, showing revenue gains arising from increased productive efficiency. The first is 1890 to 1913; the next is 1900 to 1913; and the third is 1909 to 1913. They really should be handled together in a group. (The Statements, so offered and identified, were received in evidence and marked "Employes' Exhibits 28, 29 and 30, Jan. 6, 1915," respectively).

Before taking up these three exhibits the witness desires to read in a quotation from the Bureau of Railway Economics that came by the Railway Association.

Mr. Lauck: The Bureau of Railway Economics, which is

a statistical organization maintained co-operatively by the railroads at Washington, issue bulletins from time to time making statistical studies as to railway economics, and one of their bulletins, entitled "Bulletin Number 53," is—or one of their bulletins, number 53, is entitled "The Arguments For and Against Train Crew Legislation."

I would like to read a brief extract from this, supporting the theory of efficiency or productive efficiency, as it might be called.

On page 9 of this bulletin there is a sub-chapter entitled "Increase in Train Loads." This reads as follows:

"Coincident with the development of safety appliances on trains, there has been a steady and rapid increase in the length and load, particularly of freight trains. Generally speaking, transportation is conducted most economically when traffic is handled in the largest units. The larger the loads per car and per train, the less the relative investment that must be made in roadway, track and equipment, and the less the relative expenditures that must be made for maintenance of way and equipment, and for conducting transportation.

"Placed with steadily increasing expenditures for wages, materials and taxes, while their revenues from the transportation of freight and passengers do not increase at nearly the same rate as expenses, the railways have found it necessary to practice economies in operation. The greatest economies have been secured by increasing the number of tons hauled per train, and by increasing the amount of traffic handled in proportion to the number of men employed. The extent to which, in their efforts to handle traffic economically, the railways of the United States have increased their trainloads, is indicated by the fact that the average number of tons per train in this country in 1890 was 175; in 1900, 271; and in 1910, 380. In the region of heaviest traffic, that comprising in general the states of New York, Pennsylvania, New Jersey, Delaware and Maryland, the average number of tons per train increased from 218 in 1890 to 502 in 1910. On some lines the average train load exceeds 1,100 tons; train loads of minerals ranging from 3,000 to 5,000 tons are not uncommon, and sometimes a train has as many as 6,000 tons. These heavy increases in train loads have been effected very largely by increasing the capacity of cars and their loading, and by increasing the number of cars in a train. The average ca-

pacity of a freight car in this country increased from 28 tons in 1902 to 36 tons in 1910. Loaded freight trains often contain 50 to 75 cars, and trains containing even larger numbers of empty cars and exceeding a half mile in length are run not infrequently in some parts of the country.

"There has been no such corresponding increase in the length of passenger trains, although passenger trains on main lines are somewhat longer than they were in past years. Often twelve to sixteen and even more cars are pulled by a single engine; the passenger cars have increased in size and especially in weight."

Mr. Stone: Mr. Lauck, in taking up these exhibits, numbers 28 and 29 and 30, will you state to the Board the methods used in preparing these exhibits. That is, the statistical methods I mean used in preparing the exhibits.

Mr. Lauck: Referring to page 2, we find the diagram accompanying each showing. The first item is entitled "Increase in Cost of Engineers and Firemen and Revenue Gains per Revenue Train Mile." Referring to the table at the bottom of the same page we find the statistics reporting that. That is, the cost of engineers per revenue train mile. That figure is obtained by dividing the total outlay for engineers, as reported by the railroads to the Interstate Commerce Commission, by the total number of revenue train miles, getting the cost of engineers in terms of revenue train miles.

The same method was followed in the case of firemen. Taking the total outlay for firemen and dividing it by the number of revenue train miles.

The total cost of engineers and firemen is simple addition. The total operating expenses per revenue mile is a figure which is reported by the railroads themselves in their annual report to the Interstate Commerce Commission. I did not compute that. The total operating revenue is the same as that reported by the railroads in their annual reports to the Interstate Commerce Commission. The net gain in operating revenue is a substraction of operating expenses from operating revenue, as is obvious.

Are there any questions about the method further than that?

Mr. Stone: I think that is plain. Well, what are the results you obtained from this?

Mr. Lauck: I would like to say, by way of explanation, that this exhibit does not take into consideration the capital factors. That is, I have not yet—I am just showing by this exhibit certain revenue gains as compared with costs that have arisen. Later it has been my purpose to take up the capital factors, but this shows the cost of operation per revenue train mile, cost of engineers and firemen per revenue train mile; the increase in revenue gains resulting from the heavier train loading or the operating efficiency of the railroads or the development of productive efficiency.

Referring to page 2 of this Exhibit 28, we have a figure shown for 24 representative western railroads considered as one system. The names of the railways appear on the preceding page, page 1. It is Exhibit number 28, page 2.

The table at the bottom of page 2 contains the statistics and the increase—the third column in that table, the increase of 1913 over 1890 is the matter which is embodied in the chart at the top of the page. The chart shows the degrees of increase, and the table below shows the cost in 1890, the cost in 1913 and the increase in terms of figures. The object in presenting the chart is to show the relatively small increase in costs of engineers and firemen as compared with the large increase in total costs and the larger revenue gains, show it in a graphic way by relative lengths of line.

For instance, take up the totals of these 24 representative roads, and it will be seen that in 1890 the cost of engineers per revenue train mile, referring to the table now at the bottom of the page—

Mr. Sheean: What page is that?

Mr. Lauck: Page 2 of Exhibit 28. The first item in the table. The cost of engineers was $.059 per revenue train mile, and in 1913 was $.081 per revenue train mile, an increase to the railroads of $.022 on outlay for engineers for each revenue train mile operated. Of course, that is not the rate of pay for the engineers. It is the cost to the railroads in terms of engineers, dividing the total outlay by the revenue train miles, as there might be more than one engineer on a revenue train mile, etc.

Mr. Stone: That would include engines of all classes?

Mr. Lauck: Yes, sir.

Mr. Stone: That is the total amount paid for engineers?

Mr. Lauck: The total amount paid for engineers and it is also the total amount paid for engineers hauling company material and freight, for which there is no revenue to compare. It is the same plan as we had up in the case of the train load or the cost of engineers and firemen this morning. It seems to me, to get a real indication of the cost of engineers would probably be anywhere from 10 to 20 per cent less than this, because they haul an immense amount of freight, say 15 per cent of the total traffic was unproductive traffic or did not yield any revenue to the railroad, but which the engineers were paid for hauling, and which we include here.

The increase in cost of engineers, therefore, during this period was 2.20 cents per revenue train mile. The increase in cost of firemen was 1.59 cents per revenue train mile, or a total increase in terms of both engineers and firemen of 3.79 cents per revenue train mile.

During this same period of 24 years, the total operating expenses per revenue train mile increased 68.53 cents, but the total operating revenue, during the same period, increased 95.45 cents. In other words, in 1890, the total operating expenses per revenue train mile, in round figures, was 95 cents; in 1913 it had increased to $1.63 cents per revenue train mile. Operating revenue, which was $1.49 per revenue train mile, in 1890, and which left a net gain in operating revenue of 54 cents, had increased to $2.45 per revenue train mile in 1913, and left a net gain of 81 cents per revenue train mile. So the net gain in operating revenue during this period, per revenue train mile, over and above all increases in operating costs, was 26.87 per cent. That makes provision for the payment of all operating expenses, and out of this 26 cents, therefore, must be paid the increased taxes and also the increased amount of interest, which is due to increased capital investment during this period, which I have not taken into consideration at this point.

Mr. Sheean: Now, Mr. Lauck, don't let me go on with any cross-examination, but—

Mr. Lauck: Go ahead, I am glad to have you ask me any questions.

Mr. Sheean: I just want to make sure that I understand. This total operating revenue, the line as drawn, and the figure as carried out, is the whole income?

Mr. Lauck: Yes, sir; operating income, total operating income. It does not include income from other sources than the operation of the railroad.

Mr. Sheean: That is, the pie counters, and check rooms, and so forth?

Mr. Lauck: No, or securities owned.

Mr. Sheean: Well, that represents the gross income, on that line?

Mr. Lauck: Yes, from rail operation.

Mr. Sheean: From rail operation. In 1890, out of every dollar of rail operation that we took in, we paid the engineer 5 cents?

Mr. Lauck: 5.9 cents, yes, sir.

Mr. Sheean: And of every dollar that we took in in 1913 we paid him 8 cents?

Mr. Lauck: Well, not a dollar, no, sir. In 1890 out of each 1.49 you took in per revenue train mile. Of course, the railroad took in other dollars.

Mr. Sheean: Yes.

Mr. Lauck: But just considering the railroad as an operating concern by itself, for each $1.49 you took in, you paid the engineer 5.9 cents, and in 1913 for each $2.45 you paid him 8 cents.

Mr. Sheean: Yes.

Mr. Lauck: In other words, you made a revenue gain of 95 cents and the engineer got 2.2 cents of it.

Mr. Sheean: Well, we made a revenue gain of whatever the percentage is between $1.49 and $2.45.

Mr. Lauck: Yes.

Mr. Sheean: And he made a percentage gain of whatever the difference is between 5.9 cents and 8.1 cents?

Mr. Lauck: If you want to express it in terms of percentage.

Mr. Sheean: Yes.

Mr. Lauck: But it seems to me much more satisfactory to express it in terms of cents.

Mr. Sheean: I only wanted to make sure that this line took in the gross revenue merely.

Mr. Lauck: Gross revenue from rail operation. And, of course, the point that I wish especially to call attention to is,

this cost per mile is not the rate paid to the engineer or to the fireman per mile, but it is the cost to the railroad of operating a train per mile. That is, there may have been two engineers on that train, or there may have been two firemen, whatever the conditions might be, and that is what the railroad paid for each mile of train they got over the road.

Mr. Sheean: You said you had given no consideration in this 95 cents as to the capital which had been put in between the two periods?

Mr. Lauck: No.

Mr. Sheean: Have you given any consideration as to the capital which went in at any time, in these tables?

Mr. Lauck: Not in these tables. I was going to take that up later.

Mr. Sheean: This is simply treated on the gross income, no matter how much money was actually put in, all the dollars that came in were distributed in this way, in the two periods.

Mr. Lauck: Yes.

Mr. Stone: It is only the gross income from the rail operations.

Mr. Lauck: From the rail operations.

Mr. Stone: There may be a number of other incomes from the money invested in the property.

Mr. Sheean: Yes, I did not mean to eliminate that from the question.

Mr. Lauck: You may have land or minerals, or coal, or you might have a variety of enterprises from which you receive income, but this is just the railroad. Of course, this is not at all conclusive as to the amount which is available for labor, but I thought it would be an interesting thing to show the comparison of added costs with revenue gains, before taking up the final point, which is whether something is left for labor after capital gets its return.

Mr. Sheean: Well, you take it up the other way here, these amounts being paid out. But, as to what is left for taxes and what is left for interest on indebtedness, or what part is left for any of those things, you do not attempt to consider in these tables?

Mr. Lauck: No, the 26 cents might not be sufficient to pay your taxes. I do not take that into consideration.

Mr. Stone: But it does show this: the total operating revenue was $1.49 in 1890 and the cost of the engineer was 5.9 cents, and the fireman 3.51 cents, while in 1913 the total operating revenue had gone up to $2.45 and the engineer only got 8.10 cents, and the fireman 5.10 cents.

Mr. Lauck: Yes.

Mr. Stone: It does show that?

Mr. Lauck: Oh, yes.

Mr. Stone: So it is getting much cheaper for the fireman all the time, in spite of the fact that he has a 2 cent increase?

Mr. Byram: Is that 8 cents a mile for locomotive service, for the engineer?

Mr. Lauck: Yes, revenue train mile.

Mr. Byram: 8 cents per revenue train mile paid to the engineer—

Mr. Lauck: No, no, paid to all engineers.

Mr. Byram: Well, whatever engineers, assuming there was an engineer on the train.

Mr. Lauck: If there is only one on the train—

Mr. Byram: He would get 8 cents a mile?

Mr. Stone: That includes yard men and everybody else.

Mr. Lauck: Yes.

Mr. Stone: The total amount paid to engineers, not to that particular engineer.

Mr. Lauck: It is not any individual engineer who is considered; it is the labor cost to the railroad in terms of engineers for operating a train one mile, and it consists of dividing the total outlay for engineers, whether working in passenger service, freight service, switching service, or hauling company material, divided by the total number of revenue train miles. It is what it costs a railroad to operate a train one mile in terms of engineers and firemen, not a fireman.

Mr. Byram: All the engineers in its service?

Mr. Lauck: Yes, sir.

Mr. Byram: Divided by the number of revenue train miles?

Mr. Lauck: Yes. The object, primarily, is to show that, as the result of the increased operating efficiency, there has been a revenue gain, and this revenue gain has been sufficient to pay all added operating costs and leave a net return for this period;

that is, as the result of the development of the train load, and moving more traffic with fewer train miles, and with the capital invested in the road, and in the machinery for operating it.

Mr. Byram: But this 8 cents a mile goes to a great many engineers who have nothing to do with the productive efficiency of any one train, does it not?

Mr. Lauck: Yes, sir; I mentioned that before.

Mr. Byram: Then, according to your argument, are they entitled to participate in the returns from the productive efficiency of the men who run the revenue trains.

Mr. Lauck: Undoubtedly I should think so, yes, sir.

Mr. Byram: Although they have nothing to do with producing the efficiency; take switching, for instance. They may switch cars

Mr. Lauck: I should think that would be part of the whole operation. You would have to consider it in that way. Just like the point was brought up here once, I remember, when I was in the room, about deadheading, about the man riding back on the passenger train. It seemed to me that you could not take a special case and invalidate a whole principle of operation by that, because the man going back on the passenger train was simply carrying out one of the conditions of employment.

Mr. Byram: The reason I asked the question was, that the rate of 8 cents per mile for engineers on this revenue train was so much higher than the average rate paid.

Mr. Lauck: Yes.

Mr. Byram: Probably twice as much, that it looks as if at least more than half of this 8 cents was paid to employes who had nothing to do, even on that basis, with producing the additional efficiency.

M. Lauck: Well, would not part of that be due, Mr. Byram, to more than one engineer on a train, and to helper service?

Mr. Byram: Possibly, but as I understood you to say, it included the switch engineer and the work train engineer, and many engineers who had nothing to do with actually running these trains which produce the additional efficiency.

Mr. Lauck: Well, it seemed to me proper to include those in the cost of operating your revenue train, because your revenue train is the only thing you get anything from to run

your road, and the work of all these men contributes to the operation of that train, don't you think so?

Mr. Byram: That is for you to say.

Mr. Lauck: That was my idea, anyhow, that it was a condition necessary to the operation of the revenue train, that all the work trains should be out and that the maintenance should be kept up.

Mr. Byram: A switch engineer switching in a yard has nothing to do with this additional train haul on the perfect railroad.

Mr. Lauck: No, but he puts the cars together for him to attach the engine to.

Mr. Byram: But does not help haul them.

Mr. Lauck: No. I would not hold that the theory of productive efficiency should apply only to the man who is actually hauling the train. I think all the operating elements which go into the preparation of that train and getting it over the road should participate also, because I think they are conditions necessary to the development of this train.

Mr. Byram: I see your point.

Mr. Stone: When they go down before the Interstate Commerce Commission for an increased freight rate, do they simply put in the cost of operating that mile of road, or do they have the cost of operating it as a whole?

Mr. Lauck: The road as a whole, of course.

Mr. Stone: They take into consideration all these engineers?

Mr. Lauck: Yes, and that is included in this, too.

Mr. Byram: I understood you to say in arriving at the productive efficiency of the engineer, you regarded the cost, that you were merely trying to show what he produced.

Mr. Lauck: In the preceding exhibits?

Mr. Byram: Yes, sir.

Mr. Lauck: Yes, sir, I did in those exhibits. In the preceding exhibits I took the unit of output that is commonly used, and, measured in that, showed a gain, according to the method employed, which may or may not be accepted, and then I am showing here the revenue resulting from that, and then I hope to show further that this revenue is sufficient to remunerate additional capital investment, and leave something for labor.

Mr. Sheean: The extension is made on this exhibit—just for information—you make no showing of revenue per mile of road or comparison per mile of road?

Mr. Lauck: Nowhere do I do that.

Mr. Sheean: For instance, I see the Milwaukee is one of the roads included—the Chicago, Milwaukee & St. Paul—you show their revenues in 1890 before it had built the western extension to the Puget Sound at all?

Mr. Lauck: Yes.

Mr. Sheean: And compare that railroad as it existed in 1890 with the present railroad?

Mr. Lauck: Yes. I took out the operating unit as reported that year to the Interstate Commerce Commission, whatever it might be.

Mr. Sheean: So that a ton mile in this table would be just the same if it was made on a railroad by hauling one ton over a hundred miles or operating with a hundred tons of freight over one mile.

Mr. Lauck: Yes, I think so.

Mr. Shean: It would have equal value, for the purpose of this exhibit?

Mr. Lauck: Yes, sir.

Mr. Sheean: On the Milwaukee, for instance, after its extension to the Pacific Coast, one ton of freight hauled a thousand miles would have equal value with one thousand tons of freight hauled one mile on the old line?

Mr. Lauck: For revenue producing purposes.

Mr. Sheean: Yes, I mean for the comparison here.

Mr. Lauck: Yes.

Mr. Sheean: In one case you would have a thousand miles of railroad to account for, and in the other the operation of only one mile of track—it is an exaggerated case, of course.

Mr. Lauck: Yes, sir.

Mr. Sheean: That element you have entirely disregarded, as to whether they take care of the investment for one thousand miles of railroad or for one mile?

Mr. Lauck: In this exhibit.

Mr. Stone: If you carried that out to the end, you would not build a railroad of one thousand miles for hauling one ton of traffic?

Mr. Lauck: This exhibit is not at all conclusive, so far as capital is concerned. It simply shows the revenue gain arising from increased productive efficiency, heavier train loading, and heavier locomotive loading.

Mr. Stone: After you get all through with your figures, your chart does show that with a very slight increase of cost to engineers and firemen you have a very remarkable increase in the operating revenue of these roads.

Mr. Lauck: Yes, sir, and it is interesting to note—I think the point here suggested by Mr. Sheean, in an indirect way, and which is constantly brought out by the Bureau of Railway News and Statistics, I believe, in Chicago, entitled "The Railway Dollar and What Becomes of It," and so on—here you have the claim being made that labor gets 43 cents of every dollar that the railroads make. Here you have engineers and firemen getting 3.79 cents per revenue train mile more in 1913 than in 1890, but after these allied railroads, considered as one system, had paid that on the freight operating cost, there was a net gain, so far as real operations are concerned, of 95 cents.

Mr. Sheean: Out of the two dollars instead of one, that they had it left out of before—out of the $2.45 instead of the $1.95?

Mr. Lauck: Yes, out of $2.45 instead of $1.49. Transposing it in terms of engineers, you have engineers getting 2 cents out of the additional 95 cents, and firemen getting $1.59.

I might take up one more diagram, or shall I get through with this?

Mr. Stone: You might take up a typical diagram there. The only thing I fear is that if you write the records full of one particular road, some of these other lines are liable to get jealous —that is the thing I fear. If we are going to take the same road every time, in every chart, in alphabetical order, we are liable to have trouble.

Mr. Lauck: They all make magnificent returns in operating efficiency. I do not mean to discriminate. I think the method or the idea put forward is the main thing to get at. I might take on page 3, the total for eight representative western railroads. That consists, for this period, of the Atchison, Topeka & Santa Fe, the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul, the Chicago & North-Western, the Illinois Central,

the Northern Pacific, the Southern Pacific, and the Union Pacific railroads, considered as one railroad operating system. In the case of these roads, considered as one system, referring to the table at the bottom of page 3, you have the engineer cost to the railroad of 6.1 cent per revenue train mile in 1890, and 8.2 cents in 1913, an increased outlay for engineers of 2.02 cents in 1913, as compared with 1890, per revenue train mile. The firemen, in 1890, received 3.7 cents per revenue train mile operated and, in 1913, 5.1 cents, or it cost the railroad 1.43 cents more to run a train, in terms of firemen outlay, in 1913 than it did in 1890; or, in terms of both engineers and firemen, it cost these eight representative western roads 3.45 cents more to operate a train a revenue train mile. During this same period the total operating expense increased 72 cents, in round numbers, per revenue train mile, and the operating revenue derived from these operations, producing revenue, increased $1.01, therefore, after the additional operating expenses had been paid, including cost of locomotive engineers and firemen, and all other operating costs, there was a net gain of 28.56 cents for each revenue train mile operated, which was available for payment of taxes and remuneration for increased capital investment.

If there is no further question on that section, I will turn to part 2, which is somewhat different.

Mr. Byram: Some of that money was needed for paying other expenses besides conducting transportation—some of that revenue, that 28 cents a train mile, was necessary to pay other expenses besides conducting transportation, as well as taxes.

Mr. Lauck: The 34 cents?

Mr. Byram: Yes.

Mr. Lauck: Yes, that had to meet all expenses, for taxes, for interest on funded debt, and other deductions—payment of dividends, and so on.

Mr. Byram: Any other operating expenses included?

Mr. Lauck: No other operating expenses.

Mr. Byram: Total operating expenses.

Mr. Lauck: This is not the cost of conducting transportation, but it is the cost of conducting operations.

Mr. Byram: Total operating expense?

Mr. Lauck: Yes, sir. There was a net gain from operation

of 34 cents. Then all you have left is your corporation costs and your financial costs.

Mr. Stone: When you speak of net gain, you mean after everything is paid?

Mr. Lauck: After everything is paid—everything in the way of operation of the railroad. That is, this total operating expense includes the expense of conducting operation, maintenance of road-way and structures, maintenance of equipment, trackage expense and general expense; and, then, I think that formerly taxes were included under operating expenses, but now taxes are deducted from net operating revenues, before you arrive at net operating income, therefore taxes would have to be met out of this gain. The comparison is not strictly accurate, because some taxes might have been included in 1890 in operating expenses, still the comparison would assume that to be true, and not take any account of it.

Mr. Stone: They may have done like many of them did in the west, might not have patented the land, and would not have to pay taxes.

Mr. Lauck: That might have been true of the land, yes.

Mr. Byram: Have you got any figures to show how this would work out on a ton mile basis—revenue ton mile basis?

Mr. Lauck: Yes, sir, I have got costs of engineers per ton mile, and cost of firemen per ton mile.

Mr. Byram: Have you got it compared with the revenue per ton mile?

Mr. Lauck: No, I did not compare it with the revenue, because the revenue was declining per ton mile, but not per train mile.

Mr. Stone: It is still showing a remarkable increase in the train mile?

Mr. Lauck: Yes, it is increasing.

Mr. Byram: When you come to the train mile basis you change?

Mr. Lauck: No, I am following the train mile basis all the way through.

Mr. Byram: I understood your productive efficiency was based on the train mile.

Mr. Lauck: The output, yes.

Mr. Byram: And when you come to take the return from

productive efficiency, which you have attempted to prove by your previous statistics, you change to the train mile basis for calculating the difference?

Mr. Lauck: In using the ton mile in productive efficiency, I used it because it was the unit to denote the output. The train mile is the right basis of comparison, of course.

Mr. Byram: For what?

Mr. Lauck: For productive efficiency and for revenue gains, and so on.

Mr. Byram: But you did not use it in your productive efficiency, your train mile; you used the ton mile for arriving at your argument in favor of productive efficiency?

Mr. Lauck: I used the ton mile to show the final unit of output and the traffic unit, so far as I was able to. Of course I could not show for a railroad—I would be obviously stultifying myself to show the cost per ton mile and revenue per ton mile. I do not think that is significant in the present condition. It seems to me that the train mile is the thing, because there is where you are making your revenue, if you are making it at all, or there is where you lose it.

Mr. Stone: When you pay an engineer and fireman by the train mile, or when you compute it by the train mile, because they have less train miles than ever before, they are putting out a greater ton mile, and that is just what demonstrates the earning power of the railroad.

Mr. Lauck: The railroad gets less per ton mile and more per train mile—it gets more ton miles per dollar of engineer cost than it ever did before.

Mr. Byram: But not revenue per ton mile?

Mr. Lauck: No, less revenue, I think, as a rule.

Mr. Stone: But he throws in enough extra tons to make up for it, and then some.

Mr. Lauck: Any further questions?

The Chairman: There seems to be nothing further.

Mr. Lauck: I would refer then to page 26 of the same exhibit.

The Chairman: You are still reading from Exhibit 28, are you not?

Mr. Lauck: Yes, sir. On page 26, part II, I have made a comparison as to revenue gains for each additional $1,000 com-

pensation to locomotive engineers and firemen, and have compared that with the freight revenue gains, total operating revenue gains, net corporate income and dividends, in terms of dollars and cents, merely to show that, although there has been additional outlay for engineers and firemen required to operate each train mile, and the total aggregate wages bill has increased, yet the corresponding gains have far outweighed the added outlay for these two classes of labor.

On page 26, referring to section XXIII, covering the Atchison, Topeka & Santa Fe, you will find for each $1,000 additional outlay to locomotive engineers, during the period 1890-1913, there was an increase in freight revenue of $71,000, operating revenue $43,000, net corporate income $12,000, increased dividend payments of $9,000. Expressed in terms of firemen, the corresponding increase was even greater; that is, $113,000 in freight revenue, $69,000 in operating revenue, $19,000 in net corporate income and $14,000 in dividends. And I would like to be distinctly understood that I do not mean to create any erroneous impression by this comparison or go beyond the fact that productive efficiency has been attended with revenue gains, although it has resulted in increased wage outlays. Of course, out of this increased revenue gain must be paid all the additional expenses of the railroad; the idea being simply to compare the revenue gains arising from increased productive efficiency, to show that for each additional $1,000 outlay for the two classes of labor engaged in conducting transportation, which we are considering, there has been remarkable gain in revenue at the same time, due to increased operating efficiency of the railroad and increased output of the men. I do not want to create the impression that for each $1,000 additional the railroad made $71,000 in operating revenue, but merely to show that increased productive efficiency, or increased operating efficiency, although it has been attended with higher labor cost, has also been attended with higher revenue returns, which have far and away offset the increased labor cost.

Mr. Sheean: Do you mean by that, that with this $1,000 paid to the engineers, there has probably concurrently been paid another $1,000 to firemen, or trainmen, or switchmen, or track laborers—all other persons in the employ, possibly?

Mr. Lauck: Yes, sir.

Mr. Sheean: Then, you are using the same dividend in the comparison that is used for the comparison, for the $1,000 worth of engineer, the same dividends is used over again for $1,000 worth of fireman?

Mr. Lauck: Yes. It should not be used to draw any conclusions as to the profits to the railroad, because it might be possible that all the revenue gains would be eaten up by some source of expense. Of course that is not true, but it might be possible. The fact is, I wanted to indicate that increased operating efficiency has been attended with revenue gains which have outweighed the increased labor cost, and which is shown in the preceding section, and this section shows the fact that operating efficiency has been attended with revenue gains, without any comment on net revenue gains.

If there are no further questions, I will submit this exhibit.

The Chairman: Are there any further questions?

Mr. Burgess: These figures represent the gains for each $1,000 expended for engineers and firemen, Mr. Lauck?

Mr. Lauck: Just a comparison to show that productive efficiency was attended by increased labor cost and also attended by increased revenue gains.

Mr. Burgess: And these figures represent the revenue gain?

Mr. Lauck: Yes, sir.

Mr. Sheean: There is one thing I do not quite understand on looking at it again, that first item, Freight Revenue. How do you segregate that operating revenue, or do you spread that operating revenue against the freight revenue there?

Mr. Lauck: Why, the railroads report freight revenue.

Mr. Sheean: What is it?

Mr. Lauck: The railroads report freight revenue.

Mr. Sheean: What is the other item, operating revenue?

Mr. Lauck: Operating revenue is the gross. That includes freight and passenger.

Mr. Sheean: You have freight revenue $71,000, and operating revenue $43,000. I don't quite understand those first two items, the detail of them.

Mr. Stone: I think you have got the headings transposed, Mr. Lauck.

Mr. Lauck: I am unable to explain that. I do not under-

stand why that should be, unless the headings are transposed. It seems that operating revenue should be more than freight revenue.

Mr. Stone: You have your data here and can check it up in the morning?

Mr. Lauck: Yes, I will look that up.

Mr. Sheean: Yes, to make it clear as to how you made up these items. I thought I understood it at first, and then on looking at it again, I thought I did not.

Mr. Lauck: It is a simple division, and if there is a mistake there, it is simply in the caption or in the division. Takng the increase, and deducting for each one that it increased, the increase in operating revenue. I will be glad to look that up and let you know in the morning.

The Chairman: We will adjourn now until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M. on the 6th day of January, 1915, an adjournment was taken until Thursday, January 7, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 7, 1915.

Met pursuant to adjournment at 10:15 o'clock A. M.
Present: Arbitrators and parties as before.

The Chairman: Before the witness begins, Mr. Byram desires to make a correction of the record.

Mr. Byram: On page 2,073 of the record of January 5th, in the second from the last paragraph, the question was asked by me. Mr. Burgess' name has evidently been inserted by mistake. The question was mine and not Mr. Burgess'.

W. JETT LAUCK was recalled for further examination, and having been previously sworn, testified as follows:

The Chairman: Are you ready to proceed with your testimony, Mr. Lauck?

Mr. Lauck: Yes, sir. At the conclusion of the proceedings yesterday, or just before conclusion, Mr. Sheean asked me to explain in Exhibit 28, part 2, page 26, why the gain or the increase in freight revenue for each $1,000 additional outlay to locomotive engineers or firemen, was greater than the increase in operating revenue. That is due to the fact that the division has been made there between freight and passenger traffic, and that the locomotive engineers there, belonging to freight revenue, should be freight locomotive engineers and freight locomotive firemen. In other words, the revenue increase has been

greater in freight traffic than it has in passenger traffic. Mr. Sheean, if you will refer to pages 373 to 378 of the basic tables, you will find the corresponding basic information upon which this column rests. It was impossible, in putting the table in that form, to put freight locomotive engineers, when locomotive engineers applies simply to the other columns, and I should have explained it, but I overlooked it at the time. Is that explanation clear?

Mr. Sheean: Not entirely so. If you will elaborate that just a little more, Mr. Lauck; I do not quite understand whether the two columns refer to different engineers; that is, the first column to part of the engineers—

Mr. Lauck: The first column refers merely to freight engineers and freight firemen. That is, the computation is made in the first column on the basis of each additional $1,000 outlay for freight engineers or freight firemen. There has been a corresponding gain in freight revenue, while the second column, operating revenue, is applicable to all engineers and all firemen, and in the basic tables, pages 373 to 378, the designation, freight locomotive engineers and freight locomotive firemen is used.

Mr. Sheean: How did you get the freight engineers, as given in the basic table?

Mr. Lauck: The same method as previously used. It is not the number of freight engineers, but outlay for freight engineers, and distribution has been made upon the ratio of revenue freight train miles to total revenue train miles. In other words, this computation was arrived at, similarly to the computation as to traffic units or ton miles per $1,000 outlay to freight engineers and freight firemen. That is, the total outlay for engineers was taken, and according to the ratio of freight revenue train miles to total train miles that proportion was allocated or distributed to freight engineers and freight firemen, and then the computation made as to each $1,000 increase in the compensation of freight engineers and freight firemen, compared with the corresponding increase in freight revenue.

Mr. Sheean: How do you get the increase, the per $1,000 increase? I am afraid I do not quite follow that—if you will just give us an example.

Mr. Lauck: For instance, in 1890, you would have, say, an outlay of $1,000 for freight engineers and in 1913 you would

have $2,000, or say $3,000, therefore you would have $2,000 increase in outlay for freight engineers. In 1890 you would have say freight revenue $5,000; in 1913 you would have freight revenue $20,000. Then you would divide the two $1,000 increases into the $15,000 increase for freight revenue, and you would have $7,000, plus additional gain in revenue, for each $1,000 invested.

Mr. Sheean: That is, in that example, the $1,000 might be paid to one freight engineer in 1890 and the $3,000 paid to three engineers in 1913, and you separate the last $2,000 and distribute the revenue above the revenue of 1890, all to the last man, or to the last $2,000?

Mr. Lauck: You don't pay any attention to the number of men.

Mr. Sheean: No. I modified that. To the last $2,000?

Mr. Lauck: Yes. That is, you would have an ascending scale of expense and an ascending scale of gain in revenue. For each additional $1,000 of expense there would be a corresponding gain in revenue.

Mr. Sheean: So that, if, with 99 men, I was running a business at a loss and by putting one other man on the pay roll the business as a whole became profitable, you would carry all of that increase to the last man hired or to the last $1,000 spent?

Mr. Lauck: To the last $1,000.

Mr. Sheean: And these tables are all made in that way of figuring?

Mr. Lauck: Yes. It is a case of showing—as I said yesterday, no conclusions are to be drawn from this table as to the revenue gains of the railroad, but it indicates increased returns from increased productive efficiency. That is, if you put more tons on your freight train and put an engine of higher tractive power on the train, as a consequence, if your labor does not go up accordingly, you get an increasing return in revenue, and this gives an indication of the increasing return. That is, for each $1,000 you invest in moving a revenue freight train, you get a much greater return in revenue, or, as expressed in the first section of the exhibit, say as to the Rock Island, on page 14, you pay 2.8 cents more in outlay for engineers in 1913 than you do in 1890, and you get a net revenue gain of 11 cents and a gross

gain of 77 cents. In other words, that after you have put in your increased outlay you have an increasing return.

Mr. Sheean: That may be either in decreasing the loss of previous operations or bringing the outlay nearer the income —it may be either decreasing the loss or adding to the profit?

Mr. Lauck: Yes; if there was a loss beforehand, of course, it would offset that loss.

Mr. Sheean: There is just one other thing I do not understand. On the basic derivative table you have referred to at page 373, from what part of the basic table is this part of the derivative table derived—where did you get the fundamental information—this is a deduction merely, isn't it?

Mr. Lauck: Yes, sir, that is a derivative table. That would be based on the total compensation to engineers and firemen, and the ratio of revenue train miles to total revenue train miles. I believe the table as to the ratio of distribution is not printed there. It was intended to be printed, but for some reason it has not been printed. If you would like to have a copy of that I can furnish you, if you want to check it.

Mr. Sheean: Not so much to check it as to follow the system. I want to find out how you get the $23,000, on page 373, the first item, under freight revenue per $1,000 compensation to freight engineers and firemen, 1890?

Mr. Lauck: I could draw a diagram of that, if—that I think would explain it, if you care to go into it further.

Mr. Sheean: Yes, if you will just carry that item back into the other part of the table. Show me how.

Mr. Lauck: 373?

Mr. Sheean: 373. That is the item I think you refer to there. "Freight revenue per $1,000 compensation to freight engineers and firemen 1890, $23,407." Now, where do I look in these books to find where you get that?

Mr. Lauck: Well, the freight revenue per $1,000 compensation of freight engineers and firemen would be—as I say, the distribution is not in the book, so you could not get the ratio in the book, but it is the ratio of revenue freight train miles to total revenue train miles. You would then take that ratio and find what that was the total outlay for locomotive engineers.

Mr. Sheean: Well, where could I get—in the book, where could I get what the ratio was that was used on that?

Mr. Lauck: I say that is not printed in the book.

Mr. Sheean: Well, then, there is no way of checking or verifying this from the tables?

Mr. Lauck: The revenue train miles are given in the book, and the freight revenue train miles are given in the book. You would have to work it out as I just stated. The ratio on page 14 is number of freight train miles. On page 16, number of revenue train miles on the basic table. There was such a mass of tables to be printed that, in order to avoid expense—

Mr. Sheean: Yes, but where is the freight revenue? I get your formula, but where do you get the freight revenue?

Mr. Lauck: The freight revenue is on—the freight revenue is not printed, but it is the item you report in your annual report to the Interstate Commerce Commission.

Mr. Sheean: Well, on that, to get that first item $23,407, you would have to work back from the train miles to find out what the formula was that you used, working it backwards?

Mr. Lauck: Yes.

Mr. Sheean: Then go to the original 1890 report of the Santa Fe to find what they reported as freight revenue?

Mr. Lauck: Yes. If you want to check it up, I will be glad to furnish you with the tables. I have the tables, but as I said, I did not print every table that I had, because I would have had a book that would be much more voluminous than this, and it was a matter of expense in making out the ones that seemed to be most important. But I will be glad to furnish you with the ratio of distribution, and also any other table that you want. I have them in typewritten form, if you would like to have them.

Mr. Sheean: As to each one of these, have you the ratio for each of the railroads?

Mr. Lauck: Yes.

Mr. Sheean: Well, if you have extra copies of that, I would just like to see one, to see whether I can follow your formula through. That is all.

Mr. Lauck: I will be glad to do that.

Mr. Sheean: Any time at your convenience. That is all, Mr. Stone.

Mr. Lauck: The point that I would like to emphasize. Mr. Sheean, I happen to have here a memorandum that one of the

clerks worked out, covering the Great Northern Railway, covering this computation. I would be glad to hand that to you. It is in manuscript form, but you can get the whole matter from that. I would like to explain that the primary object of this table —or to reiterate—is to show that productive efficiency has been attended with revenue gains, and that productive efficiency also has been attended with increased cost; but the revenue gains have offset the cost, and have left a net return after all added costs have been paid. Confining the comparison strictly to operating, and not taking into account the capital factor.

Mr. Sheean: Does it take into account maintenance?

Mr. Lauck: Yes, it takes into account all operating expenses, maintenance of way and structures, maintenance of equipment, traffic, general expenses, and cost of conducting transportation.

If no further questions, I will pass to the next exhibit.

Mr. Stone: No. 29.

Mr. Lauck: No. 29. It is entitled the same title as the preceding exhibit, "Revenue Gains Arising from Increased Productive Efficiency," and covers the period 1900 to 1913. The method employed is identically the same, and the wording is identically the same as in the preceding exhibit.

Referring to page 2, you will find for the period covered by this exhibit, 1900-1913, that there was an increased outlay per revenue train mile for locomotive engineers of 2.43 cents in 1913, as compared with 1890. An increase of 1.65 of outlay for locomotive firemen; or a total increase in cost per revenue train mile of locomotive engineers and firemen, of 4.08 cents.

During this same period there was an increase in total operating expenses, including engineers and firemen and all other costs of operation, of 57.46 cents. During the same period, however, due to more efficient methods of operation, there was a gain in operating revenue per revenue train mile, of 73.48 cents, leaving a net gain in operating revenue, over and above all additional expenses of operation, for 48 representative Western roads of 16.02 cents.

Mr. Byram: I notice in this statement you do not use the percentages.

Mr. Lauck: No, sir.

Mr. Byram: You use just the cents. Why did you change

from the percentage plan of figuring, to the actual dollars and cents?

Mr. Lauck: I changed for two reasons. In the first place, measuring now revenue gain, I thought it would be more effective to express it in terms of cost than return; and in the second place, by percentages of comparison—well, it is hardly a valid reason, in the second place, but I found, in making comparisons, say, between increased outlays in terms of money, you might have, say, total operating expenses of $5,000,000, with an increase of $1,000,000 in costs, which would be, in terms of money, an immense increase, but in terms of percentage would be much less than an increase, say, of $1,000 in outlay for engineers, or vice versa.

Mr. Byram: The percentage basis would not have been as favorable for your contention, would it?

Mr. Lauck: Well, it might not have been. I hardly think it would have been, because when you get into operating revenue you have a bigger figure to base your original calculation on, and you might have an immense gain in money, which would offset all increased operating costs and increased labor outlays, and in terms of percentage it would be much less than the increased outlay for labor.

Mr. Byram: For instance, an increase of 2.43 cents per train-mile in the pay of engineers, if expressed in percentage, would give quite a different impression?

Mr. Lauck: I think it would, as a rule. I think it might show, say, 40 or 50 cents increased outlay for engineers and firemen per train-mile, while the operating revenue which would offset the added costs and leave a net gain, might show only 10 per cent increase. It seemed to me it would be fairer to take the dollars and cents, in view of the fact I am considering costs and return. That is, as I stated in another connection, the primary consideration with a man who is operating a business is not the increase in his payroll, but its relation to his output or method of operation.

Mr. Byram: The relation to output would be based on percentage, though.

Mr. Lauck: If you wanted to express it in that way; but if you were computing your profits or returns, you would consider that things cost you so much more to produce and yielded

you so much more revenue, and then compare the revenue yield with your added outlay, to see what your profit was.

The Chairman: Do you, by this method, obtain a true result of the operation?

Mr. Lauck: I think it is much truer than in terms of percentage.

The Chairman: That should be the test, as to whether or not you give us an accurate description of the operation?

Mr. Lauck: Yes. That is my object in presenting it in this way, in dollars and cents rather than in terms of percentages. When you come to pay increased wages, it is a matter of costs in terms of dollars and cents, and if you have productive efficiency, it is indispensable to that, that you must have a return in dollars and cents, otherwise it is not efficiency, from the standpoint of the railroad management.

Mr. Sheean: Why are the others on the percentage basis, then?

Mr. Lauck: I beg pardon?

Mr. Sheean: Why do you put Exhibits 21, 22 and 23 on the percentage basis and this on the dollars and cents basis? What is the difference between the two exhibits in that respect?

Mr. Lauck: I had absolutely no motive in changing from the percentage to dollars and cents, such as might be indicated by your question.

Mr. Sheean: No, I did not mean to indicate that. I assumed that if the percentage was all right in one, or all wrong in the other—

Mr. Lauck: Well, both are given in the other, Mr. Sheean. The reason there, I should say—I think if you would show so many billion ton miles or so many million traffic units, you cannot get the thing down into as concise and effective form as you can by reducing it to terms of percentage. But if you will refer to Exhibits 23, 24 and 25, you will find the supporting table gives the increase in ton miles and the increase in traffic units and the percentage is carried out beyond that, so both methods are used. If we did not use percentages, all I could say would be that, owing to increased train loading and increased tractive power, each fireman handles so many more traffic units or ton miles, which I am perfectly willing to do, if there is any objection to changing the method.

The Chairman: Is it your opinion that by adopting either method we can arrive at a correct conclusion?

Mr. Lauck: Either percentage or—

The Chairman: Yes, or dollars and cents.

Mr. Lauck: I should think so; yes, sir. I would not object to it, but I think the dollars and cents is the real test of whether an operation is profitable or not.

Mr. Nagel: Is not the term "correct" too definite? You do not claim that you can arrive at distinct figures?

Mr. Lauck: Oh, no, sir.

Mr. Nagel: You are still simply establishing a tendency?

Mr. Lauck: A tendency, that is all.

Mr. Nagel: In other words, you do not undertake to show how much of this balance is to be distributed to other factors besides labor?

Mr. Lauck: No, sir. You see you have all other forms of labor to consider and all other forms of operating expense.

Mr. Nagel: And operating improvements?

Mr. Lauck: Yes, sir. But the two points I have been attempting to make are there has been an increased output, whether expressed in terms of per cents or terms of ton miles, or traffic units, or any kind of unit, there has been a tendency in that direction, due to improved operating efficiency, and this has been attended by revenue gains, revenue gains expressed in terms of dollars and cents having more than offset the added cost of these improvements in operation, and they have left a net return.

Mr. Sheean: More than the added cost of locomotive engineers and firemen?

Mr. Lauck: All costs. Total operating expenses, total operating revenue, net operating gain.

Mr. Sheean: But in that you eliminate any cost of capital?

Mr. Lauck: I have not taken up any capital yet, no.

Mr. Sheean: There has not been included any consideration of capital?

Mr. Lauck: Not to this point. I expect to take that up the next point.

The Chairman: As I understand, you think the result obtained by this method is approximately correct as tending to establish the theory upon which you base your calculation?

Mr. Lauck: Yes, sir. I think you cannot work out a mathematical formula and say that this much should be given to any factor; but there has been, in the railroad industry, just as in other industries, due to the installation of better machinery and larger capital outlay—there has been an increasing return for each unit of labor and capital invested. That this increasing return has more than offset the added cost, and that there is revenue available, after satisfying all factors, to remunerate labor, if labor can show any ground for remuneration, in the way of increased work or efficiency. I might also freely confess a point which has not been brought out, but I suppose will be,— you will notice the revenue gain is decreasing by periods. That is, the net revenue gain over and above the added costs of 1890-1913, the net gain in operating revenue, for the twenty-four representative railroads, page 2, Exhibit 28, was 26 cents in round numbers. For this period of 1900-1913, for forty-eight representative roads, it was 16 cents. That is, the net profit remaining from operations. I think it is true that, and we will have to confess on this side, there has been a tendency toward a decrease in net profits.

Mr. Stone: But you are not willing to confess that the engineers and firemen got the difference, are you?

Mr. Lauck: No. I am going to attempt to show it was not due to engineers and firemen.

Mr. Sheean: In connection with that table which you have just called attention to, in the twenty-three year period, when there is an increase of 26.87 cents to engineers and firemen, of that increase of 26.87 cents, the cost to engineers and firemen, the added cost, was 3.79 cents; while on page 2 of this exhibit that you are now reading from, in the thirteen-year period, 1900-1913, on an increase of 16.02 cents, the added cost for engineers and firemen was 4.08 cents. That is, they took about one-fourth of the total increase in the last period.

Mr. Lauck: No. In 1890-1913, they put 3.7 cents more into engineers and firemen.

Mr. Sheean: Getting an increased gain of 26 cents out of that?

Mr. Lauck: You got a gain of 95 cents out of it.

Mr. Sheean: A net gain, I mean.

Mr. Lauck: Yes, you got a net gain of 26 cents. You got

a gross gain of 95 cents, and out of that 95 cents, the engineers and firemen took only 3.79 cents.

Mr. Sheean: In the twenty-three year period, for the added cost of 3.79 cents to engineers and firemen, the net gain in operating revenue was 26.87 cents?

Mr. Lauck: The net gain, yes, sir.

Mr. Sheean: In the second period, 1900-1913, for an added cost of 4.08 cents to engineers and firemen, the net gain in operating revenue was only 16.02 cents.

Mr. Lauck: Yes.

Mr. Sheean: That reflects the same tendency, I judge, that you spoke of a moment ago, of a decrease in revenue.

Mr. Lauck: Yes. Naturally, in considering a period of twenty-four years, you had an increasing return for each additional unit you put in, because you had the full swing of gain in operating efficiency, development of the traffic and the growing up of the country and so on.

Mr. Sheean: Starting with zero, there is a better opportunity to improve percentages?

Mr. Lauck: Not zero, no. Starting with 1890. In 1900, you had already accounted for ten years of that. In the period 1909-1913, you had still further developed the managerial efficiency. The point I am unable to understand in the 1900-1913 comparison is that although during that period there has been installation of more heavy power than in the preceding five years, and which should be attended by a larger revenue gain, that even the revenue gain is smaller than in the preceding ten years, due possibly to decrease in rates and increase in other operating costs; but your maximum return, of course, is for the great period. Now, it takes more capital than labor to get a commensurate return.

Mr. Stone: Isn't it fair to assume, Mr. Lauck, that the relation of increase to engineers and firemen should be the relation to the total operating expense, instead of the net gain?

Mr. Lauck: I think that is the real test, yes, sir.

Mr. Stone: For example, in this 24-year period, with a cost of 3.79 cents, there was a total operating expense and increase of 68 cents—that is the proportion of the increase of cost of engineers and firemen to the total operating cost, isn't it?

Mr. Lauck: Expressed in gross terms of dollars and cents.

Mr. Sheean: Then, Mr. Stone, turning to page 2 of the other exhibit, and following your same two figures for the thirteen-year period, 1900-1913, the increase to firemen and engineers was 4.08 cents, on a total increase of operating expense of only 57 cents, as compared with the 68.53 cents.

Mr. Stone: I expect that year they took off all the track men.

Mr. Sheean: This is thirteen years.

Mr. Stone: Well, thirteen years—took off the track men, so as to make the total—

Mr. Sheean: The same general tendency is reflected by a comparison of the increase to engineers and firemen and the increased operating cost—the same general tendency is reflected by the two items to which I called attention, that is the increase in total cost in the latter period, and also a decrease in the total operating expense.

Mr. Lauck: You mean the net increase in operating expenses is less than in the preceding period?

Mr. Sheean: Yes.

Mr. Lauck: I think you will find, as you go along, that the increase in operating expenses per revenue train mile will show that, probably. I think you will find possibly an increasing proportion absorbed by labor, due to the fact that, with the installation of the better machinery, or the addition of more capital, you eliminate a lot of material costs; that is, of materials and supplies, and so on, although your maintenance will increase proportionately. In deducting the cost of transportation, you will find that the ratio of transportation expense to labor tends to decline, and the total cost tends to decline.

Mr. Stone: Referring back to the quotations from the annual reports of the presidents, Mr. Lauck; take for example the report of the president of the Northern Pacific for 1911, where there was a reduction of operating expenses in labor alone of over $3,000,000; it is very evident somebody was taken off, is it not?

Mr. Lauck: Yes, there was a decrease in traffic, and they took the men off.

Mr. Stone: But there was no reduction in wages of the

engineers and firemen for the actual miles of revenue; so it is evident somebody was taken off?

Mr. Lauck: Oh, yes, installation of heavier power means fewer men to operate the power proportionately and the ability of one man to handle more traffic.

Mr. Stone: And it might have been taken off in other departments as well?

Mr. Lauck: Yes. When you get to a further analysis of —the significance of this is that the added cost of operating the railroad falls upon the train mile, because you increase the train load and—but the object in doing that is to secure further economy and decreased cost than what the load carries. That is, you put in two more cents in locomotive engineers and firemen, with the expectation of getting ten cents more in revenue. And the real test is the cost per ton mile which the train carries. That is, this is an element of operating efficiency in order to secure further reduction in cost, and the ultimate test as to whether the ton mile cost is lower or higher. Of course, if the ton mile cost would be higher, this would be a foolish operation and would be managerial inefficiency, but if the ton mile cost is lower, then it pays to put in $1,000 more labor or $1,000 more capital, if you can get an increasing return. It is just a question—the same problem as a man using a motor truck instead of a dray—ordinary dray. He puts an added cost in, and he reduces, possibly, the labor cost of operation, but he gets more revenue return in operating his motor truck than he would from operating an ordinary teaming outfit with a driver and two horses.

Mr. Sheean: Unless his return is cut on the ground that he is now operating more economically, and therefore does not need as large a return as the man with a dray was getting? That is, assuming that the unit of compensation remains the same.

Mr. Lauck: Or the unit of receipts.

Mr. Sheean: That is what I mean to say, the unit of receipts.

Mr. Lauck: Yes. If there are no further questions, I don't know if it would be worth while taking up the time of the Board further with this exhibit.

Mr. Sheean: The idea of all of these charts, of this one

here and of the individual road that you show in Exhibit 29 is to show the upward tendency.

Mr. Lauck: Yes, to show the general tendency in revenue gains arising from increased productive efficiency, which have reduced added costs.

Mr. Nagel: And that is all you claim?

Mr. Lauck: That is all.

Mr. Nagel: You do not contend that the compensation of the engineers and firemen should bear immediate direct relation to the operating expenses?

Mr. Lauck: No, sir.

Mr. Nagel: Because, if that were so, they would have to fluctuate from year to year, would they not?

Mr. Lauck: Yes. That would all depend upon the operating management of the railroad, I should think. The matter is left to their judgment entirely.

Mr. Nagel: Then, the essential question is to ascertain what the engineers and firemen contribute, and what they ought in fairness to have for the work they do?

Mr. Lauck: Yes, sir. If I may be allowed to repeat again, to get it absolutely clear, and not to leave the impression that I am attempting to show that they should have this revenue or any particular part of it, the constructive argument that I am attempting to build is, first, that they have produced more, in co-operation with capital, and of course it has been the managerial ability and the foresight, and so forth, which has put the capital instrument in the hands of the workmen to develop this efficiency, and the additional money outlay, but that capital instrument has required additional work upon the part of the firemen, so far as I can judge from statistics. So far as the engineers are concerned, I only know from hearsay. That is a matter of testimony from the men themselves. And it also has decreased their ability to earn, because they are unable to make as many miles as they formerly did; and also, that that has cost the railroad more, in terms of each mile operated.

Mr. Byram: Have you shown in your statistics that they are unable to make as many miles?

Mr. Lauck: By inference from the decrease in—comparatively small increase in freight train miles, as compared with the increase in traffic handled.

Mr. Byram: But you have not been able to identify that increase with individual engineers, have you?

Mr. Lauck: No, sir. I know that to be true, though. As far as I have statistics, I have made computations on the basis of individual engineers, but I have not submitted them, because of the unsatisfactory nature of the statistics, and because I thought you might use the numbers against us in computing compensation. Not you, but the other side. And, then, coming to this point that there have been added costs for operating the trains, but, the revenue gains have offset that cost and left a net return; therefore, productive efficiency has yielded an increasing return and has been profitable, and if labor has any ground, through increased work or increased hazard or increased responsibility or inability to earn as much as before on the basis of even increased rates of compensation, they should participate to some extent in this increased productive return.

The next exhibit is Exhibit Number 30, covering the same topic. This exhibit was prepared hurriedly, and I have not been able to put it into the form that I had the previous exhibits. That is, I have not been able to prepare the diagram or the second part of the exhibit.

I think the second part of the exhibit, if I might—I want to be perfectly frank and say that I will not attempt to create any wrong impression. I think the revenue gains expressed in terms of net corporate income—dividends, would probably not show favorably to our contention in this latter period, although I have not worked that out. But, judging from the preceding period, I do not think that it would.

Exhibit Number 30, then, bears the same title and has the same object as the two preceding exhibits.

As I have just stated, I have not been able to compare this and put it into as complete a form as the others. Owing to the pressure of time, etc., I had to put it up in as rough and ready shape as I could. But, referring to the Atchison, on page 2, you will find the tendency exemplified there that I indicated in the 1900-1913 discussion. You will find that in 1909 on this railroad the cost of engineers was 6.8 cents per revenue train mile, and in 1913 7.6 cents, or an increase of 1.87 cents per revenue train mile.

The cost of firemen increase was .44 cents per revenue train

mile, or total cost of engineer and fireman increase in 1913 over 1909 was 1.31 cents.

The increase in total operating expenses per revenue train mile was 25.56 cents.

The net gain in operating revenue, however, was only 15.89 cents. So, for the period of 1913 over 1909 there was a net loss to the Atchison of 9.67 cents per revenue train mile, due to the fact that total operating expenses increased more than the revenue gain that they secured from the increased—I was going to say productive efficiency, but it would be an indication of decreased productive efficiency on this road.

But the point I wish to make is that that was not attributable in any significant measure to engineers and firemen. That is, it must have been due to other cost of operation, although their cost did increase, but not proportionately to other costs, I think.

You will find on the Chicago & Alton, at the bottom of the page, a net—

Mr. Byram: May I ask just one question?

Mr. Lauck: Yes, sir.

Mr. Byram: The total cost of engineers and firemen increased one cent, and the total operating revenue increased 11 cents, I believe, or something like that. I cannot quite read the figures.

Mr. Lauck: 15 cents.

Mr. Byram: Yes. The point is, you said the increased cost in engineers and firemen did not bear the same relation to the total cost of engineers and firemen that the other operating expenses did. Is that correct, as to the relation between the two, or is this—

Mr. Lauck: The total increase in cost per revenue train mile was 25 cents. The fireman and engineer cost was 1.13 cents and therefore it would be about 6 per cent, or something like that, or about 6 per cent of the added cost would be attributable to engineers and firemen.

Mr. Byram: Yes, but you said the pay or cost of engineers and firemen had been increased, but did not bear the same relation to the increased cost that the total did; in other words, the increased total cost was greater, if I understood you right, than the increased cost of engineers and firemen, relatively. Is that correct?

Mr. Lauck: That was not what I intended to say.

Mr. Byram: I guess I misunderstood you.

Mr. Lauck: I do not know what it would be in terms of percentages, but the idea I wished to present was that this was not primarily due to engineers and firemen. I think it would be due to maintenance expense, probably, or labor cost of maintenance.

Mr. Byram: But you do not attempt to locate the relative increase?

Mr. Lauck: No.

Mr. Byram: This is merely the exact increase in terms of cents?

Mr. Lauck: Yes, sir.

Mr. Byram: So that if you should say that the cost of engineers and firemen had not shared in the increase to the same extent that other expenses had, it would not be correct, according to this statement, I mean in the same proportion?

Mr. Lauck: I have not worked out the percentages here, and I could not say; but, from a general observation of the accounts, the proportionate increase in engineers and firemen cost is not the same as that of some of the other factors, I think.

Mr. Byram: But let us take the total other operating expenses.

Mr. Lauck: The total operating expenses?

Mr. Byram: Yes.

Mr. Lauck: Well, you would have an increase here of 25 cents on the basis of $1.50, or a proportion of about 16 per cent.

Mr. Byram: That is, other expenses?

Mr. Lauck: That is total expenses.

Mr. Byram: Total expenses, yes.

Mr. Lauck: For the engineer and firemen you would have an increase of 1.31 cents, on the basis of 11 cents, which, roughly, would be about 12 per cent, would it not?

Mr. Byram: Yes, that is what I mean.

Mr. Lauck: There would be about 4 per cent variation there in their favor, in this case.

Mr. Sheean: In their favor?

Mr. Lauck: 12 per cent increase in outlay for engineers and firemen, and 16 per cent increase in total operating expenses.

There would be three or four points favorable to them, on this particular road.

Mr. Sheean: Well, that is the Atchison?

Mr. Lauck: Yes, sir.

Mr. Sheean: Total operating expenses increased from $1.50 to $1.76.

Mr. Lauck: 25 cents, you see, on the basis of $1.50 would be about 15 per cent; I am just guessing at the percentages.

Mr. Sheean: You are referring to the Atchison?

Mr. Lauck: Yes.

Mr. Sheean: While I was looking at the Canadian Pacific, where they increased from 10 cents to 13 cents, the total cost of engineers and firemen. In the second case, the increase in cost of engineers and firemen is apparently at a greater ratio than the total increase, is it not?

Mr. Lauck: Yes, it would be about 25 per cent compared with 20, or something of that kind, against the engineers and firemen. Of course, those facts would be affected by what they were receiving before, and what they are receiving now, and the operating efficiency and so on.

The Alton shows a decline, but I do not think that that is significant, on account, probably, of other factors affecting the Alton. It is not the engineers and firemen. In the case of the other roads, you will find in the case of the Burlington 15 cents net gain, and the St. Paul .19 of 1 cent, after all operating expenses have been paid, and the North Western 1.91 cents, the Rock Island loses 6 cents per revenue train mile, which follows out the previous showing, does it not, Mr. Sheean? Decreased productive efficiency. The Chicago Great Western—

Mr. Sheean: Well, just a minute. Is there a relationship between productive efficiency in ton mile units and revenue gains on revenue mile units?

Mr. Lauck: There is a direct relation. Revenue train miles, of course, include passenger miles. Of course, if we would put this on the freight revenue train mile, you would have a much larger gain than is shown here.

Mr. Sheean: Your productive efficiency tables were all reduced to the ton mile basis, were they not?

Mr. Lauck: Yes, sir.

Mr. Sheean: And this is reduced to a revenue basis?

Mr. Lauck: The productive efficiency tables were reduced to a ton mile and traffic unit.

Mr. Sheean: Yes.

Mr. Lauck: That is, the traffic unit being a before-unheard-of unit, which consisted of adding the passenger miles and ton miles together, being an attempt to secure some kind of a common denominator. It has a direct relation, because the object of the loading of the tonnage on the trains or the passengers in the passenger trains is to secure revenue, which adds to the revenue gain per revenue train mile. It has a direct relationship, Mr. Sheean, and if it were possible for us to show the revenue gain per revenue freight train mile, it would be much greater than this gain. That is, there have been remarkable gains in the freight productive efficiency, and so far as I am able to judge, I am inclined to think there have been losses in the passenger traffic.

Mr. Sheean: There has been a loss in the unit of traffic return, has there not, revenue loss?

Mr. Lauck: Yes, I think there has been a loss in dollars and cents, too.

Mr. Sheean: Yes. If you carried out on the same basis your revenue tables to your productive efficiency tables, there would be shown a loss of revenue applied to the same units of traffic which you have shown as being produced in the earlier tables.

Mr. Lauck: If you would carry it out on a ton mile basis or passenger mile basis, of course your unit would be the average rate per ton per mile, and the average rate per passenger per mile, which has declined.

Mr. Sheean: Which has declined?

Mr. Lauck: Which has declined, yes, sir.

Mr. Sheean: That is all. I did not want to interrupt you, but I did not quite follow your suggestion on the Rock Island.

Mr. Lauck: The Duluth, South Shore & Atlantic shows a loss, which is evidently due to the fact that they have not been able to develop traffic.

The Denver & Rio Grande shows a gain of 10 cents. The Colorado & Southern 2 cents. The Great Northern, on page 6, 17 cents. The Illinois Central shows a loss of 7 cents, on page 7. I think that is due, on the Illinois Central, probably to the

fact of the great disasters they have had there in the way of floods, and the necessity of extraordinary maintenance expenses, and so on, in recent years.

The general tendency, without going into each road in detail, is to show a net gain, which is, in many cases, less than the proportionate gain in preceding years, due to reducing the period, and due to other operating factors.

If there are no other questions, in order to save time, I will pass along.

Mr. Stone: Pass on to the next exhibit. The next exhibit is prepared in three sections, as we did all the others, that is, three periods, 1890-1913, 1900-1913, and 1909-1913, and they should all be handled at the same time. They are marked 31, 32 and 33. 31 is "Increased Operating Costs of Western Railroads not Due to Wage Payments to Locomotive Engineers and Firemen, 1890-1913." 32 is the same for the period 1900-1913. 33 is the same for the period 1909-1913.

(The documents so offered and identified were received in evidence and were thereupon marked "Employes' Exhibits 31, 32 and 33, January 7, 1915," respectively.)

Mr. Lauck: Exhibit Number 31. This exhibit is entitled "Increased Operating Costs of Western Railroads Not Due to Wage Payments to Locomotive Engineers and Firemen." The first period considered is for 1890-1913. This exhibit, by way of preliminary explanation, consists of three parts. The first, referring to the table of contents, showing the ratio of principal items of operating costs to total operating expenses; the second, the ratio of operating costs to operating revenues, and the third, the cost of, freight engineers and firemen per 1,000 ton miles, from 1890 to 1913.

Referring to page 1 of the exhibit, we have a total for 24 representative Western railroads, which are given on page 1, and the supporting figures on page 2, with a diagram on page 3.

Referring to page 2 and explaining the method of computing these figures, the method is one of simple ascertainment of percentages or ratios, that is, taking the cost of each item of outlay and finding what relation it bears to the total operating expenses.

In 1890, total transportation expenses, meaning by that not total operating expense, but the cost of conducting transporta-

tion, as divided in the report to the Interstate Commerce Commission, as one subdivision, to total operating expense, bore a relation of 51.54 per cent to total operating expense; and, in 1913, 51.47 per cent, a slight decline.

In 1890, the ratio of total cost of engineers to total operating expense was 6.2 per cent, and in 1913 was 4.95 per cent, a decline of more than one point.

In the case of firemen, the ratio of outlay for firemen to total operating expense was 3.69 per cent; and, in 1913, was 3.11 per cent.

The total cost of engineers and firemen to total operating expense, in 1890, was 9.89 per cent; in 1913, the proportion was 8.06 per cent only.

Considering total labor cost of transportation to total labor cost of operation, we have a ratio of 44.2 per cent to total operating expense in 1913, as compared with 45.92 per cent in 1890.

There was also, a decline in the relation of cost of engineers to total labor cost of operation, from 8.69 per cent to 7.66 per cent.

Also, a decline in the cost of firemen to total labor cost of operation, from 5.18 per cent in 1890 to 4.82 per cent in 1913, or a decline in the total cost or total outlay by these roads for both engineers and firemen, in 1890, 13.87 points, to 12.48 points in 1913.

During the same period, for these 24 roads, the total labor cost of transportation absorbed only 28.5 per cent of the operating expense or constituted that proportion of it in 1913, as compared with 33.22 per cent in 1890.

The total labor cost of operation formed 71.31 per cent of total operating outlays in 1890 and 64.53 per cent only in 1913.

The total maintenance expense in 1890 was 37.82 per cent of total operating expense, but by 1913 they had advanced to 41.87 per cent.

The total labor cost of maintenance, that is, both maintenance of way and maintenance of equipment, to total operating expense declined from 33.91, in 1890, to 27.97, in 1913.

The cost of general officers to total operating expense also declined from 1.85 in 1890 to 1.01 in 1913.

The labor cost of administration, the labor cost of general

expense of traffic, that is of soliciting traffic, the two divisions that appear in the reports of the Interstate Commerce Commission also declined from 5.21 to 4.30.

These facts are set forth on the chart which has been prepared in an enlarged form, showing a very marked tendency to decline in labor cost to total operating expense. Very slight decline in labor cost in conducting transportation; hardly discernible on the chart. An increase in maintenance expense in 1913 as compared with 1890, but a decreased cost in labor of maintenance and a decreased labor cost of transportation, as compared with total operating expenses. A decline, also, in the cost of engineers and firemen and the total cost of engineers and firemen. The conclusion seeming to be that the element of added cost that is absorbing an increasing proportion of operating expense, is the maintenance cost, in 1913 as compared with 1890, on the basis of the ratios of the principal items of cost to total operating expense.

Mr. Sheean: Was there any change in the system of keeping the accounts between 1890 and 1913, as to distribution?

Mr. Lauck: Distribution of labor costs?

Mr. Sheean: Maintenance.

Mr. Lauck: None that I know of that would affect this, Mr. Sheean. There has been a change since 1907 and 1910, which tends to increase the operating ratio. That is, before 1907—

Mr. Sheean: That is what I meant, as to whether, covering this big period, you did not have, from 1890 to 1913, in that long drawn out period, a change in what was treated and carried to maintenance intermediate in the period?

Mr. Lauck: Why, I was going to offer an exhibit later which shows that, prior to 1907, the railroads charged permanent improvements to maintenance; that it was the common practice—nothing condemnatory or critical in making the statement—but the Interstate Commerce Commission did not require the keeping of construction or capital accounts in the way it does now. It was commonly the practice to take care of depreciation and to take care of improvements in operating expenses.

Mr. Sheean: You understand, my question did not imply criticism, but was simply to ascertain whether or not there was a change in the method of accounting in this period.

Mr. Lauck: Yes, a very decided, radical change.

Mr. Sheean: So, when you are comparing maintenance expense of 1890 with 1913, you have in one case certain items that are not included in the other?

Mr. Lauck: Yes, a very decided change.

Mr. Stone: It has been in our favor?

Mr. Lauck: It is decidedly in favor of this comparison because, prior to 1907, the common practice was to charge permanent improvements to operating expenses. In other words, according to the revenue gains, the railroad adjusted its extensions or improvements or maintenance. There were immense charges to operating expenses for items which were really adding to the permanent earning capacity of the railroad. Since 1907 that has not been possible.

Mr. Sheean: What about the change in the base itself to which this all refers, the operating expense—the ratio of various items of cost to operating expense—isn't there a very great change from 1890 to 1913?

Mr. Lauck: Only so far as is affected by these individual factors.

Mr. Sheean: No; I mean as to the items included in the operating expense itself in the two periods. I want to ascertain whether or not it is a fact that, previous to the standard or uniform system of accounting, in the operating expense there was included the hiring of equipment, for instance?

Mr. Lauck: Yes.

Mr. Sheean: That now goes into capital, doesn't it?

Mr. Lauck: Yes. Taxes also.

Mr. Sheean: So that the base—you are comparing all of these things, as the heading of the chart shows, to operating expenses?

Mr. Lauck: Yes.

Mr. Sheean: Now, operating expenses in 1890 were on a different basis from the operating expenses in the later period?

Mr. Lauck: Oh, yes. Operating expenses in 1913 are different than they were in 1910 or 1907.

Mr. Sheean: I mean they included different factors?

Mr. Lauck: Yes, but the point is, I think, so far as those factors are included, they do not work to the disadvantage of the comparison but rather to the advantage.

Mr. Sheean: What change has there been in the factors between 1910 and 1913?

Mr. Lauck: Well, I probably should have said between 1907 and 1913. There has been quite a distinct change in practice since 1910, owing to the fact that the railroads are just beginning to provide for depreciation in operating expenses, which has tended to increase the total amount of operating expense.

Mr. Sheean: But there has been no change in what used to be called operating expense, since 1907?

Mr. Lauck: No. The Interstate Commerce Commission itself practically says that the accounts of the railroads were worthless prior to 1907; that there was no uniformity, and they adjusted the accounts in the way that was most convenient, at any time; but taking these accounts as they are, as we have had to do, the factors which have affected them one way or the other, I don't think would affect this comparison, except advantageously to our side of the contention.

Mr. Sheean: Hasn't there, in fact, been a change in the instructions of the Interstate Commerce Commission as to what should be considered operating expenses, prior to 1907?

Mr. Lauck: Very decided, yes.

Mr. Sheean: And what should be considered as operating expenses since that time?

Mr. Lauck: A very decided change.

Mr. Sheean: This comparison is comparing with what was called operating expenses at both times?

Mr. Lauck: Yes.

Mr. Sheean: Although, under the instructions of the Interstate Commerce Commission, "operating expense" means a different thing at different times?

Mr. Lauck: Yes. It may mean something different next year. As I have said, the fact of charging permanent improvements to operating expenses, and not carrying any depreciation account, would tend to offset, it would have the effect of withdrawing other factors from the total, I should think, because there were very decided tendencies along that line, prior to 1907; charging capital expenditures—even since 1907.

Mr. Sheean: This chart has not carried it or attempted

to carry it as offsetting against capital charge, the change in the rules or base which is prescribed by the Commission?

Mr. Lauck: No, just taking them as we found them.

Mr. Stone: Doesn't even show the fund set aside for reserve or depreciation fund, does it?

Mr. Lauck: No. The common practice now, in operating expense is, since 1907, to increase the operating ratio. I think a lot of the increased operating cost evidently has been due to that fact, that the Commission, in 1907, required the railroads to accumulate a fund for reserve for depreciation of equipment, and to charge such rate as their own experience might indicate. While, by making charges to operating expenses for depreciation you increase the opearting ratio and you also increase, on the liability side of your account, the reserve for accrued depreciation, which tends to cut down and make much less the accrued surplus or the profit and loss—for instance, the Western railroads now engaged in this movement show about $682,000,000 accumulated surplus. What the surplus really is, is about $1,000,000,000, if it is correctly shown. If the accrued depreciation is omitted and not added to the operating reserve fund and no balance put on the other side of the balance sheet, all of that is reflected in the operating expense increase or operating ratio, which would offset, it seems to me, any changes prior to 1907. There are so many technical points, so many changes, so many variations, it would be impossible for me to attempt to bring them all together and have a uniform statement. I think that would be impossible for anyone to do.

Mr. Sheean: Does the Commission, under whose direction the accounts are kept in different ways, at different periods, recognize as proper a comparison of operating expenses prior to the change in bookkeeping in 1908, with operating expenses since that change was made?

Mr. Lauck: I think the Commission would say that any such comparison would be apt to be invalidated by all kinds of factors that occurred, prior to 1907; but my contention is that the factors which occurred prior to 1907, in the big phases of the thing, would affect it only to our advantage and not to our disadvantage. That is, miles and miles of road were constructed and charged to operating expense prior to 1907, and stations built and equipment bought and all kinds of capital expenditures

of that kind made, so that anything that would tend to affect the total in 1890 in that way, in such an immense way, would surely offset any other thing.

Mr. Sheean: If that method of bookkeeping was indulged in and charged to operation, the labor cost would be shown under operation, would it not?

Mr. Lauck: Yes, if it were construction account of labor cost.

Mr. Sheean: So that at the one time you charge all of that labor cost that you show up there, on that method of bookkeeping, and put the peak away up, and then, when there is a change in the bookkeeping, eliminate all of that from that account of operating expenses thereafter; that would simply make the two periods utterly incomparable?

Mr. Lauck: Not at all. If it was construction work, the labor would be charged, but if it were simply buying new locomotives or new equipment, there would not be any labor cost at all charged in. You would buy from the Baldwin Locomotive Works, or from whatever works you purchased at that time, you would buy the equipment and charge it.

Mr. Sheean: But if I followed you, Mr. Lauck, in your suggestion, you said that, prior to the change in bookkeeping on new roads that were built, that they charged that to operating expenses. If they did, I assume that in the operating expenses there would be all that labor cost.

Mr. Lauck: The labor to that extent would be included, yes.

Mr. Sheean: And none of that is included since the change in bookkeeping in 1907?

Mr. Lauck: Not according to the rule of the Interstate Commerce Commission.

Mr. Sheean: I mean, according to the instructions?

Mr. Lauck: No.

Mr. Stone: The fact is, that regardless of the rule, they do charge some of it yet.

Mr. Lauck: There have been a number of cases developed where, since 1907, that has been the case, due to each railroad wishing to make a special showing, or due to the fact the auditor did not understand the instructions.

But, I would say, apropos to Mr. Sheean's question, that I

do not claim this is absolutely accurate. It is just showing the tendency, and I think the factors work to our disadvantage in the comparison.

Mr. Stone: Coming back to that question of labor cost before 1907, and the method of bookkeeping. For example, if construction of a new line cost $20,000,000 and the bonds were issued for $72,000,000, which would the books show, $72,000,000 or $20,000,000 as the cost of labor?

Mr. Lauck: That would depend on whether the railroad built—

Mr. Stone: If the contracting company was given so much in cash and so much in bonds for construction of the road?

Mr. Lauck: The railroad would then carry in its accounts the total cost of the road as shown by the outstanding bonds which it issued, and any stock, etc., and usually charging the discount—there have been numerous cases of charging discounts of that kind, 60 per cent, to operating expenses or capital account. That is, the property investment account of the railroad is absolutely worthless because of those things. But they might charge the discount to operating expenses. I would have to have a specific case to know whether there have been cases of that kind.

The next chart I would like to—refer to page 83, if you please.

Mr. Sheean: It is the bottom of page 83, but the next page following it is 34. I think it is a misprint for 33.

Mr. Lauck: 33; yes, that is right. Page 33, part 2.

This takes the same railroads and makes a comparison of tendencies in proportion of operating revenue absorbed by different items of operating expense. That is, the methods consist of the simple working out of what proportion or what ratio of the total operating revenue is absorbed by the different or the principal items of operating cost. The preceding showing was, of course, what proportion of total operating expenses each item was. That is, what proportion of total operating revenue is required to pay each item of cost.

The table on page 34 contains the data which appears in the chart on page 35, and this chart is a duplication of the chart on page 35.

In 1890, the total operating expenses absorbed only 63.60 of

operating revenues, whereas, in 1913, the total operating expenses absorbed 66.81 per cent, or total operating expenses during this twenty-four year period increased for these twenty-four railroads, 3.21, or rather 3.21 advance, or more revenue—it would be more than that in terms of per cent—was necessary to pay total operating cost, total operating cost. The increase in ratio being 3.21.

The ratio of cost of engineers to total operating revenues, during this same period, declined from 3.94 to 3.30, or .64 of one point.

During the same period, the cost of locomotive firemen declined from 2.35 to 2.08, or .27 of one point. Or, both engineers and firemen declined .91 of one point, and, in other words, .91 of one point less revenue was required to meet the outlay for engineers and firemen. The ratio—

Mr. Byram: Did I understand that last statement correctly?

Mr. Lauck: The last statement was that in 1913, as compared with 1890, it required .91 of one point, or .91 of one per cent of less operating revenue to meet the compensation of locomotive engineers and firemen than it did in 1890.

Mr. Byram: That is, it took less money to pay—

Mr. Lauck: It took more money, but less proportion of revenue. The money outlay was much greater, but the revenue gain offset that, and it took a comparatively smaller proportion of revenue.

The ratio of the total labor cost of transportation, of actually conducting trains over the road, declined from 21.05 to 18.94. The ratio of total cost of transportation declined from 32.78 to 34.38.

The total labor cost of operation from 45.35 to 43.11. The total maintenance expenses absorbed 27.97 in 1913, as compared with only 24.05 in 1890. The labor cost of maintenance decreased from 21.49 in 1890 to 18.59 in 1913.

The cost of general administration also declined. These facts are graphically shown. We have a descending ratio of total operating cost to total operating revenue; that is, 3.21 more points of revenue are now required to meet costs, and although the costs in terms of dollars and cents have proportionately increased much greater in terms of percentages, you

have a decline in the margin between 100 and the operating ratio in 1913, as compared with 1890.

The labor cost of operation shows a decline of 2 points. Transportation expenses shows an advance from 32.78 to 34.38.

Maintenance expenses also ascend. Labor cost of maintenance makes a slight drop. Labor cost of transportation also slightly decreased, and locomotive engineers and firemen slightly decreased, requiring .91 of one point less revenue, proportionately speaking, now, than previously.

Mr. Stone: Taking the question of maintenance cost, or maintenance expense, they show quite an increase, while the labor cost of maintenance has shown a decrease. That must be due, then, to increased cost of material.

Mr. Lauck: I should think so, yes, sir; increased material and supplies, and all items of that kind. If there are no further questions, I will pass on.

Mr. Sheean: Mr. Lauck, on this exhibit, or in the text, is there anything which indicates whether or not the ratio of cost of firemen or engineers is in or out of line with the total labor cost of operation?

Mr. Lauck: You mean with the relative—

Mr. Sheean: Yes, I notice in the first table you made a comparison of the part of labor cost of operation.

Mr. Lauck: I did not do it in the revenues.

Mr. Sheean: You did on the first table, and I was wondering whether you did here or not.

Mr. Lauck: There was a point I noticed here, that I might as well bring out; that is the drop in total labor cost is more acute than in engineers and firemen, seemingly showing that other labor constitutes a smaller proportion than engineers and firemen. I think this chart also shows that, although the percentage did not indicate that in the preceding section.

Mr. Byram: Does not that show that the level of the engineers and firemen's compensation has been more nearly maintained?

Mr. Lauck: Yes, sir, it does show that. Here it seems to be the same tendency, as regards operating revenue. Was that the point, Mr. Sheean?

Mr. Sheean: Yes, I noticed it in the figures. You have not carried the figures here, have you?

Mr. Lauck: I did not carry them out, no. I could not here, because I am only comparing it with revenues.

Mr. Sheean: Well, you could not carry it in dollars and cents?

Mr. Lauck: No, I could not carry the ratios here, because I have only one base, the revenue, and there I compared costs of engineers and firemen with labor costs of operation. Here I only have revenue as the basis of the operation.

Mr. Sheean: It would be a different figure from what you have here, comparing the labor cost of operation and engineers and firemen?

Mr. Lauck: Yes. You could do that on a percentage basis.

Mr. Sheean: That is all.

Mr. Stone: Referring back to page 15 just a moment, Mr. Lauck. Take, for example, the Illinois Central; I see your labor cost of transportation has shown a very marked increase while your cost of engineers and firemen shows a decrease in that period.

Mr. Lauck: Yes. That would indicate that other labor charged to transportation had proportionately advanced more than engineers and firemen.

Mr. Sheean: If you will, Mr. Lauck, I think, perhaps, to clear it up, you might explain what the difference is between labor cost of operation and labor cost of transportation, in this particular chart.

Mr. Lauck: The Interstate Commerce Commission, in prescribing the accounts which the railroads shall keep, divides them, as you probably know, into five sections; I think it is five: Cost of maintenance of way and structures; that is, the roadbed, rails, bridges, and so on; Maintenance of equipment, which applies to the rolling stock; Traffic expenses, which, as I understand, cover expenses for the solicitation of traffic and maintenance of traffic offices, and so forth; and then general expenses, which include miscellaneous items; and then cost of conducting transportation, I think is the technical term. Cost of conducting transportation includes cost of labor engaged in moving trains, station employes, fuel for trains, oil for locomotives, and all supplies for trains, and items of that kind. While the total labor cost of operation consists of the labor cost of conducting transportation, plus all other labor cost, the labor cost of the

track men in maintenance work, and the labor cost of the men working in shops on maintenance of equipment, and the clerical cost and official cost of men employed in securing traffic or in miscellaneous ways; it is the aggregate cost, while the cost of conducting transportation is one item of labor cost, in which the firemen and engineers and trainmen and conductors and yard employes, despatchers, station people, and all employes of those classes appear.

Mr. Stone: I see you treat a number of these individual roads in the graphic chart.

Mr. Lauck: Yes, and then I have a number of charts drawn for different roads, principally the roads which I have called in the exhibits the ten representative western railroads. When we first started to prepare for the arbitration, it was thought it would probably be held very shortly, and it was realized it would be impossible to prepare data for all roads, so I selected ten roads to start with, which seemed to me to be representative of all conditions of operation; and these ten roads also constitute or handle more than 50 per cent of the traffic of the West, and have more than 50 per cent of the operating revenues and have more than 50 per cent of the property investment; and practically these ten roads either own or control all other roads in the West; that is, although a great many of these roads are shown separately, they are separate operating units, but are really controlled by a parent company. And I have shown in these charts the totals, and then, each of the eight or ten representative roads, and submitted tables for the other roads that are in the movement.

If there are no questions, I will pass to the third section. The third section is found on page 65. That is entitled, "Cost of Freight Engineers and Firemen per 1,000 Ton Miles."

In the basic tables you will find the supporting figures are worked out on the basis of one ton mile, but the decimal places go away out to hundreds of thousandths of a cent; so I thought it would be better to express it in terms of 1,000 ton miles, so we could get something in which we could more easily discern the distinctions.

On page 66 will be found the list of roads which enter into this comparison, twenty-four roads considered as one system.

At the bottom of the page will be found the supporting data. On page 67 is the chart.

It will be noted that in 1890, in terms of outlay for engineers, it cost the railroads 40.9 cents to get 1,000 ton miles over the road. In 1913 it cost only 19 cents, or a decreased cost of 21.2 cents per 1,000 ton miles in 1913 as compared with 1890, or less than half as much cost as in the preceding period.

Mr. Sheean: When you speak of cost to get over the road, you mean cost in engineers' and firemen's wages?

Mr. Lauck: Yes, engineers' wages, not total operating expenses.

Mr. Stone: The 100 per cent or more increase in fuel that the firemen handle is not shown in that diagram?

Mr. Lauck: Not at all. Of course that would add to the work and to the cost, both. In terms of firemen, in 1890 it cost the roads 24.3 cents per 1,000 ton miles, and in 1913 12.4 cents, a decrease of 11.9 cents; or, for both engineers and firemen, the cost was 65.2 cents per 1,000 ton miles in 1890, and only 32.1 cents in 1913, or 33.1 cents less in 1913 than in 1890.

I think this is the logical outcome of increased productive efficiency, if there has been increased productive efficiency. The revenue train mile cost has been added to, for the purpose of reducing labor and other costs, and by adding ton miles to the train load, decreasing cost has been attained in transporting ton miles, both in terms of labor and other costs, and here you have, for this period, a sharp decline in costs of engineers and firemen per ton mile, which is the ultimate unit of output.

Mr. Stone: That diagram is in actual cents?

Mr. Lauck: Yes, that in cents.

Mr. Stone: If carried out on a percentage basis, what kind of shape would it have been in?

Mr. Lauck: Well, it would have been more than 100 per cent decrease, of course.

Mr. Stone: It would run almost straight down the map?

Mr. Lauck: Yes.

Mr. Byram: You think that chart reflects a great increase in the productive efficiency of the engineers and firemen between 1890 and 1913?

Mr. Lauck: Yes, sir.

Mr. Byram: Your chart, on page 3 of Exhibit 23, shows

that during that period the productive efficiency of firemen and engineers was slightly over 5 per cent.

Mr. Lauck: It was more than that, was it not, Mr. Byram? In 1890 to 1913 I think it was about 40 per cent.

Mr. Byram: About 40, and is that percentage greater than this?

Mr. Lauck: That is less in traffic terms of output. This is not just like that figure. That is not accurate, that is the general tendency, and this shows that, too. You understand, I have had to distribute it by the method which Mr. Sheean does not like, the cost of freight engineers and freight firemen to freight traffic, in making this diagram. If you had some common unit of traffic that we could agree on, which does not exist, then you could get an absolute comparison.

Mr. Sheean: This is freight engineers, then, is it?

Mr. Lauck: Yes, ton miles; it must be freight engineers.

Mr. Byram: These are payments to freight engineers?

Mr. Lauck: Payments to freight engineers and to freight firemen.

Mr. Byram: Arrived at by—

Mr. Lauck: By distributing the cost of total engineers to freight traffic, according to the mileage made by revenue freight trains.

I do not think it is necessary to take up the time of the Board further, if there are no questions on this exhibit. The ten representative roads are shown, and the supporting tables for other roads.

The Chairman: Does any member of the Board desire to question the witness further as to this exhibit?

Mr. Burgess: Just look at this Union Pacific table, Mr. Lauck.

Mr. Lauck: What page?

Mr. Burgess: 89. That exemplifies your statement.

Mr. Lauck: The Union Pacific appears on page 89. I think that is due to the development of operative efficiency on the Union Pacific; that is, there has been a more abrupt decline in costs on that road than is the case on some of the other roads.

Mr. Park: By reason of the great change in its physical characteristics?

Mr. Lauck: Yes, I think capital has paid a very great part in that. Is that sufficient, Mr. Burgess?

Mr. Burgess: Yes.

Mr. Lauck: There you have a decline of almost 100 per cent, do you not?

Mr. Burgess: In the costs?

Mr. Lauck: Yes.

Mr. Burgess: That is all.

Mr. Lauck: It is very striking in the way the lines are brought out.

Mr. Sheean: I do not understand that decline of more than 100 per cent, Mr. Lauck. Where do you get that?

Mr. Lauck: This seems to be a time when the percentages are going my way.

Mr. Sheean: I do not quite follow you as to what you mean by declining more than 100 per cent.

Mr. Lauck: Well, probably, technically that is not correct. The idea was, on page 88, the total cost of engineers and firemen was $1.274 per 1,000 ton miles, and it declined by 1913 to only 25.5 cents per 1,000 ton miles, or a total decline of $1.019 for the period.

Mr. Stone: It would come pretty nearly being 100 per cent.

Mr. Lauck: Well, the cost now would be only one-fifth of the cost in 1890. The cost now is only 20 per cent of what it was in 1890, per 1,000 ton miles, on the Union Pacific, according to this method of distribution, for getting freight traffic over the road.

Mr. Sheean: That was done, however, with an actual loss in revenue, on your last exhibit, that we had there this morning, was it not, in the period from 1909 to 1913?

Mr. Lauck: I do not recall exactly whether the Union Pacific lost or not. It may have during that period. This is 1890-1913. I have a period for the Union Pacific which we can compare as we go along.

Mr. Sheean: I see.

Mr. Lauck: Are there any other questions?

Mr. Sheean: See if I get clear on that. It just did occur to me, one thing. I think you showed here on some of the exhibits, some road having increased its train load from 44 tons up to 170 tons per train.

Mr. Lauck: The Louisiana & Arkansas, I believe.

Mr. Sheean: Well, some road.

Mr. Lauck: Some small road.

Mr. Sheean: Now, on this exhibit—I mean preparing an exhibit along the lines that you have prepared this, the cost of engineers and firemen is necessarily shown very much higher on that road than on more fortunately situated roads.

Mr. Lauck: Cost in dollars and cents, or in ton miles?

Mr. Sheean: In this exhibit.

Mr. Lauck: It might be that there would be on these 24 roads, or on the Union Pacific there might be an increase of 100 per cent in the outlay for engineers and firemen. That is, the total outlay in terms of dollars and cents. But, the real test of whether that has been economically invested is whether in terms of traffic haul it shows a decline in cost.

Mr. Sheean: Well, I mean, starting with the railroad alone that had this very light tonnage, that made a remarkable showing in percentages, from 44 tons up to 160 tons per train. I think it was 44 tons in 1890 up to 160 tons in 1913.

Mr. Lauck: Yes, I remember.

Mr. Sheean: If you had charted that same road, reducing it to this unit of traffic, that would show the same sharp line that was shown there, of the relative reduction in cost.

Mr. Lauck: Almost straight down.

Mr. Sheean: Almost straight down.

Mr. Lauck: Provided—

Mr. Sheean: And the chart itself might apply to a road that was loading 40 tons to a train in 1890 and 4 carloads to a train in 1913.

Mr. Lauck: Yes.

Mr. Burgess: You will find it on the next page, Mr. Sheean. Arizona & New Mexico.

Mr. Sheean: I see. That was all I wanted.

Mr. Lauck: I think the cost per ton mile is dollars and cents indication of whether productive efficiency has been profitable or not. And, of course, looking at it from the standpoint of the railroad operating side, you might have this very abrupt decline in cost of engineers and firemen per ton mile, which might be attended by an increased cost in other factors, which would offset the decline in cost of engineers and firemen. But,

the point that I am holding to now is that the tendency has been, per unit of traffic or per dollar of operating revenue, for the cost of locomotive engineers and firemen not to be primarily responsible for the added cost of operation.

If there are no further questions, I will take up the next exhibit. Exhibit Number 32. This bears the same title and is prepared by the same method, and covers the period of 1900-1913.

Referring to pages 1, 2 and 3 of the Exhibit Number 32, I have a total of 48 Western railroads. The list of roads appears on pages 1 and 2. The chart is on page 3, and is reproduced in larger form on the easel, and the data supporting the chart on page 2.

On referring to the table on page 2 (not to take up too much time) it will be found that the total cost of engineers to total operating expenses constituted a proportion of 5.25 per cent in 1900 and only 4.90 per cent in 1913. The firemen constituted 3.18 in 1900, and only 3.08 per cent in 1913. Or, both for the firemen and engineers together they made up 8.43 per cent of operating expenses in 1900, and only 7.98 per cent in 1913, a decline of .45 of one point in operating expenses. I might mention there that although a decline of .45 of one point, or an increase of one point, or three points, while it may seem small, it represents an enormous amount of money in the total operating revenues or total operating expense or even in the case of labor outlays.

Referring, then, to the chart, we have a change in the showing here made in labor cost of operation as compared with the preceding period. If I remember correctly, even the labor cost of operation in 1913, as compared with 1890, it showed a downward tendency. Now, advancing ten years, we find the labor cost of operation constitutes a larger proportion of operating expense in 1913 as compared with 1900.

Transportation expenses, consisting of labor and all other expenses for getting trains over the road, shows a decline.

Maintenance expenses, including all labor cost of maintenance and supplies and all other cost of maintaining road bed and equipment and structures, shows an upward tendency in 1913 as compared with 1900.

Labor cost of maintenance is this line beginning here and going up. It also shows an upward tendency.

Labor cost of transportation shows about an — shows a slightly downward tendency. Engineers and firemen, considered as a whole, or enginemen, show a slight decline, of 1.45.

Mr. Sheean: How do they compare with the general decline in the labor cost of conducting transportation? About the same?

Mr. Lauck: Yes, of the labor cost it would be about the same.

Mr. Sheean: And that labor cost of conducting transportation, includes the engineers, firemen, trainmen, conductors, telegraphers, station agents, and all those directly considered?

Mr. Lauck: Yes.

Mr. Sheean: So that the reduction in cost as to all of that seems to be on about a line here?

Mr. Lauck: It seems to be about the same on this road.

If no further questions, I will take up the second one. While you are hunting that, I will go on with the third section.

This chart covers the section beginning on page 80, the same as in the preceding exhibit, and shows the cost of freight engineers and freight firemen per 1,000 ton miles, pages 80, 81, 82 and 83.

Referring to the supporting data on page 82, we find for engineers, in 1900, it required 24.40 cents in terms of outlay to produce 1,000 ton miles. In 1913 it required only 20.70 cents of outlay on the part of the railroads for engineers to produce 1,000 ton miles, or 3.70 cents less in 1913 than in 1900.

In the case of firemen it required 1.70 cents less per 1,000 ton miles in terms of outlay for firemen to produce 1,000 ton miles, or for both engineers and firemen, 5.40 cents less outlay per 1,000 ton miles produced. This chart simply reproduces the chart on page 83, and shows the downward tendency in cost per 1,000 ton miles for engineers and firemen. Any questions?

The succeeding part of that section is taken up by showing for individual roads, either in graphic form or by tables.

This refers to part 2 on page 47. This shows the relation or the amount of operating revenue absorbed by principal items of operating expense.

Referring to the table on page 46, it will be noted that engi-

neers in 1900 absorbed 3.23 of 1 per cent of the total operating revenue. That is, the wage outlay as to them, required that much of each dollar received. While in 1913, out of each dollar the engineers took 3.25 of 1 point, or a slight increase—.02 of 1 point increase.

In the case of the firemen, the firemen absorbed .08 of 1 point increase, or advanced from 1.96 to 2.04. Page 46. Or, considered as a whole, as engine crews, the engineers and firemen absorbed .1 of 1 point of operating revenue more in 1913 than they did in 1900. During the same period the total labor cost of operation absorbed in 1900 17.99 of 1 point, or 18 per cent, as compared with 18.58 per cent in 1913.

The total cost of transportation advanced from 33.45 to 33.93.

The total labor cost of operation advanced from 37.61 to 42.47.

Labor cost of maintenance advanced from 16.86 to 18.83.

The total maintenance expenses advanced from 25.53 to 28.01.

The significance of the showing is that the operating ratio showed quite a decided increase, or the ratio of operating revenue which was required to pay all operating expenses.

The total labor cost of operation, including all labor outlays for all classes of operation, advanced practically with the total operating ratio.

It would seem that the labor cost of operation was primarily affected by the labor cost of maintenance. That is one of the primary factors, because that shows a decided advance, and maintenance expense in the same way was largely responsible for the increased operating ratio, from the standpoint of materials and supplies. There was a slight increase in the amount of revenue absorbed by engineers and firemen, although that does not show the same relative upward trend as labor cost of maintenance or total labor cost of operation.

Mr. Byram: What is your conclusion as regards individual engineers and firemen, from this showing?

Mr. Lauck: The conclusion is that operating costs of the railroads have increased, and that total operating expenses have tended to absorb more and more of operating revenues, and that has been primarily due to increased maintenance expenses, in-

cluding labor of maintenance, and it has partly been due to increased labor cost of transportation, and has been due also to a slight increase to locomotive engineers and firemen.

Mr. Byram: Increases in their pay?

Mr. Lauck: I should think so, yes, sir.

Mr. Byram: As to the individual engineers and firemen?

Mr. Lauck: I don't know.

Mr. Byram: I mean as to the engineers and firemen as a class, then?

Mr. Lauck: Yes.

Mr. Byram: What do you deduce from this chart as to whether they have been benefited or injured by the situation disclosed by that chart?

Mr. Lauck: I gather that they have absorbed slightly more revenue and increased outlays to them, as a class, by the railroads, but they have not proportionately shared, as compared with all labor.

Mr. Byram: That is the aggregate amount?

Mr. Lauck: Yes.

Mr. Byram: As to the individual, you cannot tell anything about it?

Mr. Lauck: I don't know about the individuals, no. My conclusion, though, was, and I was using this exhibit to show that the increased operating costs, owing to the increased productive efficiency of the engineers and firemen, have not been primarily due to the engineers and firemen. There has been a slight increase. Of course, you understand, and it goes without saying, that any diagram of this kind may be affected by a falling off in business, to some extent, although if the revenue is taken entirely from traffic, there ought to be proportionately less engineers and firemen engaged in conducting a reduction in traffic, in ratio to the effect of it on both sides.

Mr. Byram: As to whether engineers and firemen, individually, have received more or less pay for their work, this chart does not show?

Mr. Lauck: No, sir. I have never considered them individually. The exhibits have only considered them from the standpoint of the railroad paying them so much money, and what they got for the money which they paid them.

That completes that exhibit, unless there are some further questions.

The Chairman: We will take a recess until 2:30.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

W. JETT LAUCK was recalled for further examination, and, having been previously sworn, testified as follows:

Mr. Lauck: At the close of the proceedings, before lunch, I had completed Exhibit 32, I think.

The next exhibit, No. 33, bears the same title and covers the same point as the two preceding exhibits, the difference being that this Exhibit 33 covers the period 1909-1913.

Part one of this exhibit is entitled, "Ratio of Principal Items of Operating Costs to Total Operating Expenses." As in the case of the preceding exhibits, the first section covers the totals for seventy-eight Western railroads, which are listed on pages 1 and 2; on page 3 is the table of supporting data, and on page 4 is the diagram.

Referring to the diagram, and not going into the detail of the table, we have a continuance in the tendency of total operating costs to go upwards, a slight increase in total transportation expenses, a slight increase in total maintenance expenses—

Mr. Stone: I think you made a mistake. This top line is your labor cost of operation instead of your total cost of operation.

Mr. Lauck: Yes; I was thinking about revenue. The labor cost of transportation also shows a slight increase, while the labor cost of maintenance shows a somewhat more decided increase. The costs of engineers and firemen also show a slight increase. In 1909, the outlay for engineers constituted 4.82 points, and in 1913, 4.87 points, or 5 points increase in the case of engineers, and 4 points increase in the case of locomotive firemen, or a total increase of .9 of one point in the case of both engineers and firemen.

The conclusions to be derived are practically similar to the 1900-13 comparison, with probably an added corrollary that the tendency seems to be for all the important items of expense

to further tend upward in their relation to total operating expenses.

If there are no questions, I will pass on.

Mr. Sheean: Just on page 3, I would like to ask one question, Mr. Lauck. You have carried out the ratio of total cost of engineers and firemen to total labor cost of operation.

Mr. Lauck: Yes.

Mr. Sheean: Now, the total cost of engineers and firemen is a sub-item of total labor cost of transportation, is it not?

Mr. Lauck: Yes, sir.

Mr. Sheean: So, if you carried out there the total cost of engineers and firemen to total labor cost of conducting transportation, you would have a ratio between elements that are more nearly related than you would between total labor cost of engineers and firemen, and total labor cost of operation, would you not?

Mr. Lauck: Yes; I think that that would show more of a downward tendency, though, in the case of engineers and firemen, compared with—probably it would, I do not know—comparing it with labor cost of transportation, which is simply the labor cost for engine crews, train crews, station employes, yard employes, and so on; it would be relating the engineers and firemen more nearly to the actual department in which they are working than it would to total labor cost of operation.

Mr. Sheean: In a rough way, the labor cost of engineers and firemen on the chart, as shown between 5 and 10, is pretty nearly straight across, so far as the naked eye can see.

Mr. Lauck: Yes; they are slightly increased.

Mr. Sheean: And the labor cost of transportation, between 25 and 30, is also pretty nearly straight across.

Mr. Lauck: Yes, a slight increase.

Mr. Sheean: Slightly increasing?

Mr. Lauck: Yes, sir.

Mr. Sheean: So that, apparently, the cost of engineers and firemen is about parallel with the total labor cost of conducting transportation during that period?

Mr. Lauck: It does seem to follow practically the same tendency. And the significant variation is in this labor cost of maintenance, it seems to me. It more nearly approaches the total labor cost of operating increase. You note from the table

also that the comparison with the engineers to total labor cost of operation shows a slight decrease, that is, in 1909 the outlay for engineers constituted 7.77 per cent of total labor cost of operation, and in 1913 7.63. The firemen also show a slight decrease, and both show a slight decrease, showing a tendency for engineers and firemen and for transportation cost also not to keep pace with the added labor cost.

Mr. Sheean: Well, without giving the exact figures, you know from the general showing of these lines that the further ratio of total cost of engineers and firemen to the total labor cost of conducting transportation would bring it much more nearly parallel than this chart shows it?

Mr. Lauck: Yes. Without looking at the chart, I started to make the statement that there would probably be a little more downward tendency. I was thinking that the labor cost, just from general observation or general reading, would not be as much, would not show as much of a tendency upwards as it might in the case of other classes of employes. But the chart shows, as you have indicated, a similarity, a parallelism.

Mr. Park: How do you explain this upward tendency of cost of engineers and firemen in this period? It had a downward tendency in the other period, but in this it seems to have an upward tendency.

Mr. Lauck: I think that is due to the fact that the returns from productive efficiency have not been comparably as great in this period as in previous periods.

Mr. Park: Your other exhibits show that, I believe.

Mr. Lauck: Yes.

Mr. Stone: Would not the fact that they were three or four hours longer getting over a division with a train, thereby adding to the cost—would not that have a tendency to bring the line upward, or would it bring it the other way?

Mr. Lauck: I am unable to say either way, Mr. Stone. I think, other things being equal, that it might tend upward, but we ought to assume that if they take that much more time and they ought to have a heavier train, that they were getting over that road, that heavier train ought to have more tons on to produce more revenue.

Mr. Stone: If they had the same operation?

Mr. Lauck: Yes, unless it was some accident or circumstance.

Mr. Byram: How would that affect their productive efficiency?

Mr. Lauck: If they were held—

Mr. Byram: Taking more time on the road to transport a train.

Mr. Park: Hauling more tons.

Mr. Lauck: If the tonnage did not keep pace with the time they were on the road, it would decrease their productive efficiency. But I should think, logically, that the reason they are on the road longer is because they have a heavier train and cannot get over the road, and therefore the productive efficiency ought to increase as the outlay increases.

Mr. Stone: You heard some of the testimony, Mr. Lauck—were you in the other day when a man from the Wabash was testifying?

Mr. Lauck: No, sir, I was not in.

Mr. Stone: Did you read his statement, where they sidetracked his train and switched four hours, and were four hours longer on the road, and then took a tonnage train on the end of the road, that would be an added cost, and yet he handled no more tons than if he had not switched that four hours?

Mr. Lauck: Of course, that would be decreasing his efficiency without any blame attached to him at all, as far as I know.

Mr. Byram: Would that have the effect of decreasing his productive efficiency?

Mr. Lauck: Yes.

Mr. Sheean: But for the four hours' switching that he did there, he was paid for four hours, whereas the schedule would require pay for a ten-hour day if they put someone else to do that little isolated case of switching. Then you get your base (referring to the total pay for engineers and firemen). It would decrease his productive efficiency, if you employed a separate switch engineer to do that work, wouldn't it? You are spreading the productivity, as I understand it, over the whole revenue basis?

Mr. Stone: That would be another item of railroad bookkeeping, wouldn't it?

Mr. Lauck: Well, meeting the question squarely, it would increase the cost, and therefore decrease the net return.

But there ought to be enough available to pay them all, it seems to me.

Mr. Stone: If that $642,000,000 really exists, that you talked about this morning, there is, isn't there?

Mr. Lauck: I should think so.

Mr. Stone: And then some, besides?

Mr. Lauck: Anything added to the cost would, of course, decrease the productive efficiency argument, from my standpoint.

Mr. Sheean: Do you happen to remember, without referring to the others, whether you have taken the same groups of railroads in these three periods?

Mr. Lauck: No. I have had to change my number because I could not get the operating units. The number increases as we go forward toward the present time.

Mr. Stone: This is the largest number of roads, seventy-eight?

Mr. Lauck: Yes. Back in 1890, when we were just starting, we didn't have a great many of these roads. I will pass on to the next section, if there are no questions.

Part 2 page 35. Proceeding, without going into the table, this is a comparison of the same seventy-eight railroads, of operating revenues and the ratio of cost of the principal items of operating expense. We have an increase in the operating ratio of 2.7 per cent, or 2.7 points. In other words, in 1913, 2.7 per cent more revenue was required to meet operating expenses than in 1909. Labor cost of operation also advanced from 40 per cent to 42.93 per cent, or practically 43 per cent of operating revenue. Transportation expenses advanced from 32.53 points, in 1909, to 34.23, in 1913. Maintenance expense also advanced in a parallel line almost, with transportation expenses. Labor cost of transportation advanced from 17.78 to 18.72, and labor cost of maintenance from 17.75 to 19. plus. The cost of engineers and firemen, considered as a total, were .17 of one point more in 1913 than in 1909, or it required .17 of one point, or one per cent, more revenue in 1913 than in 1909 to meet the outlays for engineers and firemen—.28 of one point, or .28 per cent, I should have said.

I will next take up, if there are no further questions, part 3, page 76, cost of engineers and firemen per 1,000 ton miles, for the period 1909-1913. The chart is found on page 76, for seventy-seven representative western railroads. The supporting data is on page 75, and the list of roads on pages 74 and 75.

Referring to the table on page 75, the total cost of engineers in 1909, per 1,000 ton miles, was 35.1 cent; and in 1913, 33.6 cents, a decrease of 1.5 cents for the period, there being a decrease of .9 cents in the cost of engineers per 1,000 ton miles, and .6 cents, or six mills, in the cost of firemen. This is shown graphically in the slight movement downward. Of course the tendency for this period for the decrease in cost would be proportionately less than for any preceding period shown in all the charts.

Mr. Stone: If that graphic chart had been done in percentages instead of cents, there would be a much more marked tendency downward?

Mr. Lauck: It would be about five per cent, five or six per cent.

Mr. Byram: How do you account for the fact, Mr. Lauck, that the decrease in the cost of freight engineers and firemen per 1,000 ton miles, in this period, is so much less than it was in the period from 1890 to 1913, as shown by Exhibit 31?

Mr. Lauck: I am not able entirely to account for that. When I compare the increase in tonnage loading, I find a larger tonnage from 1909 to 1913 than the preceding five years, which should yield proportionately the same productive efficiency or reduction in costs; and the only explanation I can give is that the gains, considering a longer period—that by 1909 there had been such a gain made, that the gains have been proportionately less since that period, when we compare the two periods, 1890 to 1913 with 1909 to 1913.

Mr. Byram: This is the actual cost per 1,000 ton miles, is it not?

Mr. Lauck: Yes. I would say now that for your additional investment in labor, and capital having developed such a high operating efficiency, you get comparatively smaller returns than you did formerly, when the movement just began; that is, there are not the same increasing returns now that there were in past years. Do I make my point clear?

Mr. Byram: Yes.

Mr. Lauck: I think there is a comparatively decreasing return.

Mr. Byram: That is not quite satisfactory to my mind, but that is the only one you can give.

Mr. Lauck: That is the only way I can explain the tendency of the figures.

Mr. Byram: On page 39 of Exhibit 33 you show that the cost of engineers and firemen has slightly increased, the ratio to operating cost.

Mr. Lauck: Yes.

Mr. Byram: While, on page 76, showing the cost of freight engineers and firemen per 1,000 ton miles, you show a decrease in the cost per 1,000 ton miles?

Mr. Lauck: Yes.

Mr. Byram: How do you reconcile the increased cost in the ratio to operating revenue and the decreased cost per 1,000 ton miles?

Mr. Lauck: I reconcile that on the basis of heavier train loading. In the preceding section, too, there was an increase in the ratio of outlay for locomotive engineers and firemen to total expense.

Mr. Byram: I am speaking now about the ratio to operating revenue.

Mr. Lauck: Yes, and to operating revenue, too, there is; therefore, it seems to me that that increased ratio of expense was overcome by a gain in the productive efficiency of the engineer and fireman, by putting more tons on the train and increasing the tractive power.

Mr. Byram: Might it not be affected by a decrease in the revenue?

Mr. Lauck: Yes, sir, it could be affected by that.

Mr. Byram: So that the ratio would necessarily be affected by other factors than the efficiency?

Mr. Lauck: Yes, both ratios are affected by both sides of the equations always; like in a period of depression, as in the past year, if the labor cost was not kept down which would be very hard to do, in harmony with the decrease in traffic, you would have a proportionately greater cost.

Mr. Byram: What value can there be in a comparison

that depends on the fluctuations in the volume of business, or the total revenue, as to determining the proper wage for engineers and firemen?

Mr. Lauck: I think that any comparisons based on ratios are unsatisfactory. The operating ratio of the railroads is unsatisfactory for the same reason. There are two sides of the equation that you have to consider. But the real test, it seems to me, is this, when you get to the final unit which you are producing, and then ascertain the cost of producing that, just as you would a yard of gingham in a cotton mill, and your return, and you are able to ascertain then whether you are doing it economically and whether the employe is efficient from a productive sense.

Mr. Byram: You are speaking now of the ton mile?

Mr. Lauck: Yes, sir.

Mr. Byram: Should not we also consider revenue on a ton mile basis, too? When you speak of the returns from this ton mile earned, should not the ton mile be the determining factor, too, if you are going to determine your cost on a ton mile basis, should you not determine your revenue on the same basis?

Mr. Lauck: I think that that would be true, yes; that is, of course, if your decreased cost and productive efficiency do not offset the lower price you are receiving, then you would not be earning anything.

Mr. Byram: That is it, exactly.

Mr. Lauck: I think I would have to acknowledge that; yes, sir.

Mr. Sheean: Just one question more on that. From the comparison of revenue to ton miles, you know that the decreased revenue in ton miles is greater than the corresponding decrease in cost on the ton miles, during this same period; do you not?

Mr. Lauck: I do not know that. No, I do not think that is true. You are speaking of engineer and firemen costs, or total cost? Otherwise, you would not have any net revenue for the railroad, you know.

Mr. Sheean: Well, Mr. Lauck, what I meant was that the return per ton mile during this period from 1909 to 1913 has decreased more rapidly than the cost per ton mile of engineers and firemen.

Mr. Lauck: I do not know.

Mr. Sheean: I thought you said—

Mr. Lauck: I never have made a study of that; no, sir.

Mr. Sheean: I thought you said, this morning—I misunderstood you, perhaps.

Mr. Lauck: Mr. Bryam and I were talking of that yesterday, when we were talking about productive efficiency, and I said that I had not selected the ton mile because the revenue train load was the means of measuring the economical handling of freight or passenger traffic. I think in the case of a railroad you are confronted with a very different situation than you would be in an ordinary business. That is, you cannot increase the price of your product without official authorization; and of course if you had increasing costs in an ordinary business you would increase your price; but here you have to meet an increasing cost with increasing efficiency, if you are going to reduce your costs and make a profit, unless you can get authorization to increase your freight rates.

Mr. Sheean: Could I go back just a minute to page 38, Mr. Lauck.

Mr. Lauck: Yes.

Mr. Sheean: I wanted to ask for information there. In the item, ratio of total cost of engineers and firemen to total operating revenue, that is the fourth or fifth line in your table?

Mr. Lauck: Yes.

Mr. Sheean: That increased from 1909 to 1913?

Mr. Lauck: .28 of 1 point.

Mr. Sheean: Well, it increased from 5.07 to 5.35.

Mr. Lauck: Well, the total increased from—

Mr. Sheean: Yes, both?

Mr. Lauck: Both increased from 5.07 to 5.35, yes, sir.

Mr. Sheean: That is, by comparison with the total operating revenue?

Mr. Lauck: Yes, sir. If there are no further questions, I will proceed.

Mr. Stone: That concludes that exhibit?

Mr. Lauck: Yes.

Mr. Stone: Exhibit 34 is next, Decrease in Revenue Train Mile Costs?

Mr. Lauck: Yes. The next exhibit which I wish to sub-

mit for consideration is Number 34, and is entitled "Decrease in Revenue Train Mile Costs During the Fiscal Year 1914."

(The document, so offered and identified, was received in evidence, and thereupon marked "Employes' Exhibit, No. 34, January 7, 1915.")

Mr. Lauck: This is in further elaboration of the same point that we have been discussing, as to the increase in operating costs not being primarily due to increased outlays for locomotive engineers and firemen, and also it brings up an interesting point in connection with one phase of the discussion we have had as to the adjustment of labor cost to the traffic conditions in a period of depression.

Mr. Stone: These figures are derived from the annual reports, are they?

Mr. Lauck: Yes, sir; these figures are taken from the annual reports of the railroads to the Interstate Commerce Commission, the basic figures, and the computations per revenue train mile are made by us.

This exhibit, as in the case of all these recent exhibits, has been hurriedly prepared and does not include all roads, and it has not been possible to make a table.

Referring to page 2, at the top of the page, we have the Atchison, Topeka & Santa Fe Railway. Referring to the table, it will be seen that in 1913 the Atchison paid for each revenue train mile operated 7.67 cents for engineers and 4.69 cents for firemen, or a total of 12.36 cents per revenue train mile in outlay for engineers and firemen. In 1914 the total outlay had decreased to 11.95 cents, a saving of 41 cents per revenue train mile, or the ratio of cost, in terms of engineers and firemen, to operating a train mile, in 1914, was only 96.68 per cent of that in 1913.

The same way for the Chicago, Burlington & Quincy. The cost, in terms of engineers and firemen, for operating a train mile in 1914, was 99.66 per cent of that of 1913, a saving of only .04 cent. For the St. Paul it was 98.9 per cent in 1914 of that of 1913.

Mr. Stone: What did you say the saving was on the Chicago, Burlington & Quincy? I think you said it wrong.

Mr. Lauck: I said four hundredths of one cent.

Mr. Stone: Is that right?

Mr. Lauck: For both engineers and firemen, yes. It was 11.72 in 1913 and 11.68 in 1914.

Mr. Byram: How do you account for that, Mr. Lauck, assuming the same rates of pay prevail now as prevailed in 1913, which is the fact, how would you account for the smaller payment per revenue train mile to engineers? There has been no change in conditions that would permit running a train without an engineer, or with less engineers, and paying the same rates of pay, how could there be a smaller payment per train mile?

Mr. Lauck: The way I would account for that would be that there was more efficient handling of traffic. That is, you might get the traffic you had over the road with fewer train miles, and the outlay for engineers would decrease proportionately.

Mr. Byram: You have to have an engineer on every train, and this is a train mile.

Mr. Lauck: Yes, but previously you might have had two engineers on a train, and now you may have only had one. Wouldn't that be true?

Mr. Stone: The gasoline motor up in the Black Hills might have changed it, mightn't it?

Mr. Byram: Well, I spoke of this because I know that the conditions have not changed. That is the reason I ask you about the Burlington.

Mr. Lauck: Well, it is a very slight change on the Burlington, four hundredths of one per cent.

Mr. Sheean: Unless it be this gasoline motor which Mr. Stone spoke of, how do you get an increase on the Burlington of the engineers and a decrease of the firemen on the same railroad?

Mr. Lauck: That is an operating condition that I cannot tell.

Mr. Sheean: I would like to know what the operating condition would be that would bring about that result, if your formula is right.

Mr. Lauck: Well, there is no formula here, you know.

Mr. Sheean: There is the formula of assuming, is there not, that the relation between freight miles and passenger miles has remained the same in the two years? You have thrown all miles together here, haven't you?

Mr. Lauck: That is something that the roads do in reporting, themselves. I did not do it in this case.

Mr. Sheean: Oh, they separate their freight miles from their passenger miles. You have added them together?

Mr. Lauck: No, they report a total.

Mr. Sheean: They report a total, and they report the separate items.

Mr. Lauck: Yes. I have taken their total.

Mr. Sheean: And you have assumed that the ratio or relationship between the passenger miles and the freight miles was the same in the two years, haven't you?

Mr. Lauck: I have assumed whatever they did in reporting. It does assume that, yes.

Mr. Sheean: Well, I say the fact is, Mr. Lauck, that they report passenger miles and freight miles, and total miles?

Mr. Lauck: Yes, and total revenue miles.

Mr. Sheean: And total revenue miles.

Mr. Lauck: Which I have taken.

Mr. Sheean: And the passenger miles, freight miles, and total revenue miles, made up by addition of the others?

Mr. Lauck: Yes.

Mr. Sheean: Now, the passenger miles and the freight miles are separately reported in the two years, so that you could easily ascertain whether the relationship or ratio between them remained the same?

Mr. Lauck: Yes.

Mr. Sheean: As a matter of practical knowledge, do you not know that in case of a falling off in business, that the falling off is more largely in the freight than in the passenger? Passenger trains have to run very largely, whether there are people to ride on the cars or not?

Mr. Lauck: Yes, I think that would be true, yes, sir.

Mr. Sheean: So that, the rate being different—

Mr. Lauck: Unless, of course, in course of time they would take off some of the passenger trains. I am perfectly willing to assume that.

Mr. Park: You would have to know, also, the work train mileage. That is not reported. Only revenue freight mileage. You would need to know how much of that there was on the road. That is paid for.

Mr. Lauck: Yes. I am simply taking the figures that are reported by the railroads. I did not make any division.

Mr. Park: But they did not report their work train miles?

Mr. Lauck: No, they did not report that. That may explain some of the decrease. They may have added to the outlay of engineers in previous years (which would be the case) the cost of work trains or maintenance expense, which they would necessarily have to drop in times of depression, owing to dropping off in revenues, I should think.

Mr. Sheean: Well, even without the other complication of the switch engineers' payroll being in here, and the work train, maintenance and all that, if you had just the two items of passenger and freight, but the engineers and firemen paid on a different rate per mile, in freight and passenger service, a mere change in the proportion between freight and passenger from one year to the other would cause a change in this showing, or might cause a change?

Mr. Lauck: Yes, I think so. But, at the same time, you will recall that we showed in a previous exhibit there was an increased train loading in 1914, as compared with 1913. That is, I submitted an exhibit (I have forgotten the number) saying "Gains in Revenue of Freight Train Loading During the Fiscal Year of 1914," and following that productive efficiency argument, if we increase the train load we ought to have a decreased cost, if other things remained equal. In times of business depression they were constantly adding to the train load.

Mr. Stone: But the work train miles would not be shown as revenue miles at any stage of the game, would they? They are generally considered a dead loss, aren't they?

Mr. Lauck: The work train miles would not be shown as revenue train miles at all, but the cost of work train revenues would be charged against revenue train mileage in this computation.

Mr. Park: So it would affect it. If you added 10 per cent, or 20 per cent, or 30 per cent for work train mileage, it would affect it in ratio?

Mr. Lauck: Oh, yes, but it seemed to me that it would show to more advantage to our contention if we could get the straight payroll for revenue producing men, and see what the actual cost was there. And, along with this decreased cost that

has already been shown, is seen an increased train loading of revenue freight during this same period. Even in times of depression the increased operating cost that was to be met, was met by increased operating efficiency.

Mr. Byram: You are taking into account, Mr. Lauck, I presume, the difference in rate of pay of passenger enginemen as compared with freight men, the freight men getting the higher rate of pay. The change in ratio of freight and passenger service on any road, because of the difference in the rates of pay would also affect this tabulation.

Mr. Lauck: Yes, that would affect it. I have no way of finding out the factors, you know. You understand that. That is from the reports to the Interstate Commerce Commission, I can only take the total cost of engineers and firemen.

My idea in presenting this exhibit is twofold. First, to show that there is a tendency toward a further decrease of cost in engineers and firemen. There is a tendency toward a lessening of cost, due to efficient handling of freight and heavier trains. And also to show that productive efficiency, as set forth in the previous exhibit for the fiscal year 1914, an increase in —for instance, I think the increase in the Burlington train load was about 2 per cent, something like that, has been attained by lower cost. All these factors would come into conflict with that, but I have no way of knowing anything about it.

Mr. Sheean: Just to clear that up, Mr. Lauck. Will you turn to the Burlington in your Exhibit 24, page 2 of Exhibit 24. On your productive efficiency table for the Burlington, for this same period, you show a decreased productive efficiency of engineers. Now, this table you are looking at now for the same period on the Burlington, shows an added cost.

Mr. Lauck: A slight decrease in cost.

Mr. Sheean: No. This one, I mean (indicating).

Mr. Lauck: The last one I have submitted shows .04 of 1 cent less cost per revenue train mile.

Mr. Sheean: No, the engineers shows an increase.

Mr. Lauck: I beg your pardon, I thought you meant the total.

Mr. Sheean: The two exhibits for the same period on the same railroad—that is assuming that your deductions from productive efficiency are sound—why they should lead to this result?

Mr. Lauck: That seems to be the logical result. That simply proves it absolutely.

The Chairman: Mr. Lauck, in reaching this conclusion, did you take into consideration all of the money that was paid by the railroads to firemen and engineers?

Mr. Lauck: Yes, sir.

The Chairman: Did you also take into consideration the number of non-productive revenue miles?

Mr. Lauck: No, sir, I did not. I charged all against revenue mileage, and, to that extent, it seems to me, a true showing of productive efficiency would be about 15 per cent more than I am able to show, because, as far as I am able to ascertain, on a revenue freight train there is about 15 per cent traffic which is company traffic—cross ties and ballast and so on.

Mr. Stone: After all is said and done, the one fact remains, that you simply take the total revenue miles, as reported by the railroads themselves, and divide the cost of engineers and firemen by that?

Mr. Lauck: Exactly, and thereby put upon the revenue train mileage all the cost of incidental service or unproductive service, which, it seems to me, are necessary conditions to producing the revenue of the road. The switchman, although he may not move revenue-producing freight over the road, is contributing to that result, and his cost should be considered against the revenue-producing freight.

Mr. Byram: How does he do that, Mr. Lauck?

Mr. Lauck: My idea of the switchman is that he assists—I don't know that I really know what a switchman actually does,—I used to know what he did when I was younger—the switchman assists in putting the trains together to which the engineer comes down on the engine from the roundhouse and attaches the engine to the train, couples up and pulls out of the yard.

Mr. Byram: How does he contribute to the productive efficiency of that train any more because it is 50 cars than if it is 40 cars?

Mr. Lauck: Well, the object of a railroad is to move as much traffic in one train as possible, is it not, and with the least outlay possible? I should think, if a railroad employed a switchman to get the trains together—I remember when I was younger and lived in a railroad terminal place, a lot of that had to be

done by the engineer and fireman; but I suppose that the railroads found it more economical to employ a switchman and a yard engine to assemble the train than it does to pay the engineer and fireman to go down and assemble the train and get it out and go over the road.

Mr. Byram: That is not exactly the point I wished to have made clear. If by putting ten cars more on a train, say fifty cars instead of forty, that, according to your argument, increases the productive efficiency of the train crew that handles it over the road, how does the switchman who puts it together in the yard contribute to that productive efficiency, when he puts ten more cars on the train and there are fifty instead of forty cars?

Mr. Lauck: I think every one who works on a railroad contributes to that, whether he is in direct service or indirect service. That is the division superintendent contributes to that, or the train despatcher.

Mr. Byram: The division superintendent and the train despatcher have something to do with the movement of the train on the road.

Mr. Lauck: Yes.

Mr. Byram: The switchman has not. His duty is to put the cars together.

Mr. Lauck: Well, the grease cup man in the roundhouse, I think contributes toward it. I think any man employed by a railroad which is producing ton miles contributes to that result.

Mr. Byram: The switchman does not contribute indirectly?

Mr. Lauck: He contributes indirectly, I think, because, in the case of the switchman, he is contributing a service which is something necessary to the preparation of the train and the operation of the railroad, just like taking a man in a cotton mill who sweeps the floor; I think that he contributes toward the output, although in a very indirect way.

Mr. Byram: The switchman would contribute in the same way, then, if he put those ten cars on another train—the ten cars still go over the road?

Mr. Lauck: Well, of course, he does not do that of his own volition. He has instructions as to where to put the cars, does he not?

Mr. Byram: What I am getting at is—I expect I am wasting time—

Mr. Lauck: Perhaps I do not get the point.

Mr. Byram: I just wanted to get your idea of what way these outside factors contribute to the so-called productive efficiency of the train crew that hauls this heavier train over the road.

Mr. Nagel: You base your rule upon the fact that the fireman or engineer or switchman contributes to an improved service?

Mr. Lauck: Yes, sir.

Mr. Nagel: And not solely upon the circumstance that he incurs a heavier service by the contribution which he makes?

Mr. Lauck: No, sir. Although in the case which I specifically have in point, that of the engineers and firemen, I have endeavored to show, for the fireman, that there is a greater burden of work falling upon him, and for the engineer, greater responsibility, by the heavier train load.

Mr. Nagel: I understood you to say yesterday that you do not rely upon that alone?

Mr. Lauck: No, sir.

Mr. Nagel: That you think an increased wage is justified where the engineer or fireman contributes to an improved or superior service?

Mr. Lauck: Yes, sir. That would be my personal view of it.

Mr. Sheean: Would that be in connection with or as part of a general distribution to all engaged in the plant now, more efficient than in former times?

Mr. Lauck: I didn't get that, exactly.

Mr. Sheean: Would there be a separate apportionment to engineers and firemen because of this generally improved efficiency of the entire plant, or better operated plant, whatever was the term Mr. Nagel used?

Mr. Lauck: To reduce the question to the lowest form, both as to the point developed by Mr. Nagel and by you, Mr. Sheean, would be if there was an increased output and no increase in services, whether employes should participate.

Mr. Sheean: No. Whether in case you showed a generally more efficient machine, without any segregation of the con-

tributions to that efficiency in any different department, whether the share of credit or remuneration for that should be general with all employes connected with the more efficient machine?

Mr. Lauck: I think that I would have to logically hold that—personally, now, I am speaking, in the argument, that is—that the workers should participate.

Mr. Sheean: Section men and everyone connected with the generally more efficient machine?

Mr. Lauck: As a general, broad proposition, I should say so.

Mr. Sheean: And in that connection, outside of the one element that you spoke of here, of heavier work, I think you said as to the fireman—

Mr. Lauck: Yes, sir.

Mr. Sheean: And increased responsibility as to the engineers?

Mr. Lauck: Yes, sir.

Mr. Sheean: You have not attempted to ascertain what department or in what manner or to what degree any of the employes of the railroads have contributed?

Mr. Lauck: No. I had no means of knowing. I simply have attempted to show the increased productive efficiency of those men, attended by the heavier work and greater responsibility.

Mr. Nagel: Then, if an increased productive efficiency is secured by the employment of a superior engine, in your opinion, the engineer in charge of the engine should have his wages correspondingly increased, although it could be shown that his labor and his responsibility is in no sense enhanced?

Mr. Lauck: I think so, yes, sir. I think if we do not hold to that view—always granting that capital must receive a fair and liberal return and also always conceding that managerial ability must be given a generous reward—I think, if we do not hold to that view, the progress in invention and general industrial progress would work to the detriment of the wage earner rather than to his benefit. For instance, taking the case of Mr. Ford and the automobile industry. There you have a case of remarkable productive efficiency developed from managerial ability, and a surplus return of $10,000,000, which

he distributed to his employes, while his employes probably did not contribute very much to that—it was Mr. Ford's or somebody else's managerial genius or the genius of organization and the use of machinery; and I think the same is true in any kind of industrial enterprise, if we are going to have industrial progress we ought to give participation to the worker, after a fair remuneration has been given to capital, after it has been remunerated for risk, and managerial ability has been compensated. It seems to me if we do not do that, that is the only way of bringing about a true progress and offsetting any revolutionary movement.

Mr. Park: Mr. Ford distributed a portion of that to the man who swept the floors?

Mr. Lauck: Yes, sir.

Mr. Park: Just the same as to the mechanic of the highest degree?

Mr. Lauck: Yes, sir.

Mr. Nagel: Do you think that rule ought to apply in the case of a corporation of a quasi-public character, like a common carrier? In other words, is a common carrier to stand upon the same basis as the purely private enterprise?

Mr. Lauck: Not exactly, no, sir, I don't think so.

Mr. Nagel: Well, to follow it out, do you think it ought to apply in respect to men who are employed by the government, where it is entirely public?

Mr. Lauck: I think a man, either an operating official of a public service corporation or a government official would be confronted with the difficulty of probably giving a participation for which he felt he could not incur the responsibility, in view of his employment.

Mr. Nagel: The principle which you invoke is in no sense applied in public work, is it?

Mr. Lauck: No, sir.

Mr. Nagel: In other words, if an employe of the government makes a valuable invention, it belongs to the government, and he sees none of the benefits?

Mr. Lauck: Exactly, yes, sir.

Mr. Nagel: No matter how successfully he may do his work, his compensation is in no sense increased?

Mr. Lauck: No, sir.

Mr. Nagel: I wondered where you would draw the line or where you would apply the rule to a common carrier, which stands between the private enterprise and government employment?

Mr. Lauck: I should think in that case a fair measure of participation granted to employes would be approved by the public, it seems to me.

Mr. Nagel: You admit, however, that it presents a distinct question?

Mr. Lauck: Yes, sir, I think so.

Mr. Nagel: Because, probably, on the other hand the rights of the employes of a common carrier stand upon a higher basis and are more secure than they would be if the employes worked for a purely private enterprise?

Mr. Lauck: Yes, sir. If you have a private enterprise it would be a matter of your own private decision as to what you would do. If you were more or less of a public official, in the capacity of a railroad official, you would hesitate, probably.

Mr. Nagel: The rights of the employes of a railroad, as against, for instance, the bondholders, would be greater than in a case where the bonds were held in a private enterprise?

Mr. Lauck: Yes, sir. The great difficulty, it seems to me, from the standpoint of the advancement of the wage earner, has been, in the case of private enterprise, the financial organization has a tendency to absorb the results of inventions and improvements and managerial ability by security issues and, as a consequence, the increased productive efficiency is constantly taken over and there does not seem to be anything there for the employe to get. I think the real remedy would be some regulation of security issues, or something of that kind, and you could get a better index of what could be done.

Mr. Nagel: You probably also think that the long-headed policy would rather encourage a participation at an earlier stage for those who really do the work?

Mr. Lauck: Yes, sir.

Mr. Stone: I note, Mr. Lauck, on the next statement, of the Chicago, Milwaukee & St. Paul, on page 2, that you show gasoline passenger miles. Why do you differentiate between steam passenger miles and gasoline passenger miles?

Mr. Lauck: That note is put there in order to explain that it is in there, that is all. That is all I know about it.

Mr. Stone: When a passenger buys his ticket to ride, he pays just the same price, whether he rides by steam or by gasoline, does he not?

Mr. Lauck: Yes, I should think so, unless it would be in suburban traffic. But that note is carried by the Interstate Commerce Commission, and I added it.

There are a number of roads, several roads, that show an increase. The Great Northern shows a cost of 106 per cent in 1914 as compared with 1913. The Colorado & Southern, The Chicago, St. Paul, Minneapolis & Omaha; The Chicago, Rock Island & Gulf, and several other roads show a slight increase.

Mr. Stone: But the increase in proportion to those that show a decrease are about three to one in favor of the decrease?

Mr. Lauck: Yes. If there are no further questions I will take up the next exhibit.

Mr. Stone: Have you any questions on that exhibit now, Mr. Sheean?

Mr. Sheean: No, I think not.

Mr. Stone: If not, we will introduce the next exhibit.

Mr. Lauck: The next exhibit is No. 35, and is entitled "Over-capitalization and Not Increased Wage Payment has Affected Net Earnings."

(The document so offered and identified was received in evidence and thereupon marked "Employes Exhibit No. 35, January 7, 1914.")

Mr. Lauck: This exhibit is quotations from an article which appeared in Moody's Magazine for April, 1912, by Mr. W. Martin Smith. The term "Over-capitalization" here, is not meant in the sense of fictitious security issues or security issues without any corresponding investment in the road, but means actual capital commitment, physical investment in the road. I want to make that clear, that this is not any attempt to show that the roads have been over-capitalized from a financial standpoint, but the point brought out in the article is that the management of the railroads anticipated a greater volume of business than actually developed, and in making their capital commitments they put in more capital than the actual business developed justified, and in consequence, the operating expenses are carrying

a large load of maintenance which otherwise would not have been the case, and that the increase in operating ratios is largely due to this fact, and more so than is commonly attributed, and not so much due to increased labor costs.

Mr. Sheean: That means, Mr. Lauck, in connection with your other exhibits, as I understood it, that all of the plants, so far as these other exhibits are concerned, may be assumed as having been given for nothing, finding them at that time, and you are considering only the condition of operating those plants, irrespective of any costs; all of the previous exhibits.

Mr. Lauck: All of the previous exhibits did not consider capital at all.

Mr. Sheean: In any way?

Mr. Lauck: Yes.

Mr. Sheean: And, in this article you are not considering—

Mr. Lauck: I am not considering capital, no, sir. I am submitting this, not to show any financial operation of the railroads, from the standpoint of security issues, but in further elaboration of the point that increased operating costs have not been primarily due to locomotive engineers and firemen. I simply submit this for the consideration or information of the Board, to the effect that Mr. Smith puts forth the claim, just as you did yesterday on the Chicago Great Western; you said they had put in an immense amount of capital since the reorganization, which had not been productive; or, like the North Western, they might build a new station, which it would take fifty years from now to become really productive from the standpoint of capital investment; or the Pennsylvania Railroad might have to wait twenty-five years or maybe fifty years or longer, to secure a fair return on the terminal in New York; or you might have to elevate your tracks in a certain city, and it would be an unprofitable capital commitment. The point in this article is that the railroad managers anticipated a larger volume of business than developed. They put capital in their roads in anticipation of that, or into their equipment, and they capitalized the traffic that did not come much higher than it had been capitalized in the past.

Mr. Sheean: Let me see if I understand that. I have not had a chance to glance at this yet. But, on the basis of your previous exhibits, assuming that all of the real estate and all of

the depots and all of the tracks and all of the roundhouses, and all of the passenger and freight cars and engines had been given by the railroad companies and had cost them nothing, free from any indebtedness, the thought that you wish to develop is that they have so much of it, beyond the needs of the country, that the mere cost of keeping it up and maintaining it is excessive?

Mr. Lauck: In comparison with the business handled.

Mr. Sheean: In comparison with the business, that they have too much equipment at the present time, irrespective of any cost?

Mr. Lauck: Yes, exactly.

Mr. Stone: Speaking of terminal depots, Mr. Lauck; from a financial standpoint, is it ever justified in spending $100,000,000 for a terminal, such as some of our railroad systems do spend, and putting it as a burden on the property?

Mr. Lauck: I don't think so, no, sir, not from the standpoint of profitable investment.

Mr. Stone: Well, is it not a fact that the president of the Pennsylvania Lines testified in our Eastern Arbitration that the $130,000,000 they spent in New York City never would pay on the investment?

Mr. Lauck: It is not a productive investment. Whether it has sufficient advertising features to make it worth while, is the only question.

Mr. Sheean: Do you know how you are going to resist the demand of a community like Chicago with reference to the building of this union depot that they say will cost $65,000,000? If you were a railroad manager, in what manner would you proceed to avoid the installation and construction of a depot which the newspapers say is demanded to keep in step with the progress of the times?

Mr. Lauck: You would have to accede to public opinion, I think, and then your only recourse would be to ask for higher rates.

Mr. Sheean: And as the manager of a railroad company—Oh, you say you would accede to it?

Mr. Lauck: I think you would have to, if there is a demand. But still it would be an unproductive investment from the standpoint of the railroad.

Mr. Sheean: And so, in elevating the tracks in Chicago, Mr. Lauck, that might be unproductive, it might be cheaper to continue to kill and maim people, but, nevertheless, good management would require the actual elevation of those tracks, although you did not get it back in money?

Mr. Lauck: Yes.

Mr. Sheean: And yet you think that the cost because of the requirements of municipalities, legislatures, cities, is so large as to make the cost of maintenance and compliance with this, take up an undue part of the company's revenue?

Mr. Lauck: I think partly, yes, sir, and partly equipment and other improvements. Elimination of curves and grade reductions. I don't say that in any critical spirit at all. I think just as you do, that the railroads have had to do it, and I am simply attempting to develop the point that increased operating costs have not been primarily due to locomotive firemen and engineers.

Mr. Sheean: No, there are a lot of other—

Mr. Stone: Isn't there a wide distinction, Mr. Lauck, between the elevation of tracks and the probable return to a railroad, and the building of a $65,000,000 depot at a terminal? You get an expedited movement of your trains; you get away from the legal end of personal damage suits by elevation of your tracks, while, probably, in the case of the depot, you will never handle an additional passenger more than you did with the old one. There is a wide difference between the two, isn't there?

Mr. Lauck: Yes, sir, quite a difference, yes.

Mr. Nagel: Notwithstanding the difference, you think you would yield to public opinion and build the depot?

Mr. Lauck: I think I would have to, yes, sir, and I would have recourse then—I surely would do all I could to get increased freight rates from the Interstate Commerce Commission.

Mr. Nagel: And after you had built the depot, if the same public opinion wanted six trains at 12 o'clock at night from Chicago to St. Louis, what would you do then?

Mr. Lauck: I think I would have to put them on.

Mr. Stone: And we would have to furnish the engineers, or somebody would, to pull the trains.

Mr. Lauck: Yes, sir. If the passenger trains did not de-

velop traffic, I would not blame the locomotive engineers for not having productive efficiency.

Mr. Nagel: I agree with you about that.

Mr. Park: And if you found as many trespassers were killed on the elevation as on the old grades, you would still continue to elevate the tracks, if they passed ordinances in Chicago?

Mr. Lauck: I would have to do it, yes, sir. I think if the public demand those things, they ought to pay for them. That is my idea about it.

Mr. Burgess: Now that they have made you a railroad manager, Mr. Lauck, after doing all those things, would you change the productive efficiency of the engineers and firemen if it actually existed?

Mr. Lauck: Oh, undoubtedly, yes, sir.

Mr. Nagel: After having raised everybody up you would have to find out where you could pare down?

Mr. Lauck: I would probably hear from the stockholders by that time, and the holders of bonds.

Mr. Park: And you would do as they said.

Mr. Lauck: Shall I read some selections from this?

Mr. Stone: Yes.

Mr. Lauck: I do not need to lay any great stress on this, and I do not want to take up the time of the Board by reading it at all.

Mr. Stone: I think the milk of the whole thing is in the third paragraph on the second page.

Mr. Lauck: The third paragraph on the second page, yes. Or on the first page, is it not?

Mr. Stone: Second page, page 2.

Mr. Park: Tell us something about Mr. Smith, what his capability for making this is.

Mr. Lauck: I don't know a thing about him. I only know it appeared in Moody's Magazine, and I am not laying any great stress on it, submitting it just for the idea of consideration, nothing more. Moody's Magazine is a very reputable financial journal, an unbiased journal, that has the same standing that the Commercial and Financial Chronicle has.

Mr. Stone: The fact remains, does it not, that none of the

subsidized writers from the other side have questioned any of the figures given?

Mr. Lauck: I have seen no criticism of it at all.

Mr. Sheean: Perhaps none of them have read it.

Mr. Nagel: His criticism is that the difficulty rests with unnecessary betterments rather than with increase in wages.

Mr. Lauck: Yes, that is the point of it, and I do not want to take up the time of the Board in reading it.

Mr. Stone: I think there is a typographical error here.

The Chairman: As I understand, your contention is that you do not object to these betterments or improvements?

Mr. Lauck: No.

The Chairman: But you do insist that they ought not to be made at the expense of the men who operate the trains,—the engineers, firemen and other employees?

Mr. Lauck: Yes, sir, that is my point.

Mr. Nagel: In other words, the relief lies with the Interstate Commerce Commission?

Mr. Lauck: Yes. I do not think that the men ought to be made to pay the penalty, and that increased operating cost ought not to be ascribed to the men, when it may be due to something else.

Mr. Nagel: If you accede to public opinion in making these betterments, then you think the public ought to be willing to pay the rates?

Mr. Lauck: Yes.

Mr. Stone: I think there is a typographical error here. You say in full face type at the beginning, "Reprinted from Moody's Magazine, April, 1912."

Mr. Lauck: Yes.

Mr. Stone: And in the last line of the paragraph, "Which appeared in Moody's Magazine for April, 1914."

Mr. Lauck: It is a typographical error. 1912 is the right one. Shall I read from it? I will read the second paragraph on page 2. The conclusion of the writer is that:

"Obviously, we should revise our opinions as to the cause of the rise in operating expenses. Throughout this discussion, the effect of higher wages upon operating ratios has been overestimated. The overcapitalization of the railroads has been constantly underestimated, by assuming that the normal rate of

increase in ton mileage should be 7.15 per cent, whereas this is manifestly too high. The maintenance expenses due to overcapitalization have been underestimated;"

This overcapitalization is used in the real sense here, not in the muck-raking sense.

"and the additional interest charges attributable to the same cause have been underestimated by using too low an average interest rate. Railroad bond issues the past few years have borne a rate considerably in excess of 4 per cent; and the only thing that keeps the average rate of all outstanding bonds down to 3.79 per cent is that old bond issues bearing from 5 to 7 per cent are being retired and displaced by these new low rate issues. It is, therefore, well within the facts to state that less than one-third of the increase in operating expenses since 1905 is due to higher wages, and that less than one-fourth of the deduction from surplus earnings is due to this cause. Stock and bond-holders should therefore open their eyes and frankly face a situation of their own making; for the higher operating expenses and reduced surplus available for dividends are chiefly due to excess amounts of new securities authorized and issued by themselves."

If no further questions, I submit that.

The Chairman: Does any one desire to ask any further questions in regard to this exhibit?

Mr. Lauck: Exhibit No. 36, in further elaboration of the idea of decreased outlays, is entitled: "Productive Efficiency and Decreased Capital Costs, 1900-1913."

(The document so offered and identified was received in evidence and thereupon marked "Employes' Exhibit No. 36, January 7, 1915.")

Mr. Lauck: Referring to the table of contents, in the case of certain roads shown, the decrease in cost of road and equipment per revenue train mile. That is, cost of road and equipment from cost of road as reported to the Interstate Commerce Commission. That is supposed to represent all the actual capital investment in the road. And also part 2. "Decrease in Capitalization per Revenue Train Mile," for the period 1900-1913.

Most of the railroads show an increase in property investment per revenue train mile, and an increase in capitalization

per revenue train mile. But there were a number of roads that show a decrease, and I submit these as showing a tendency among a great many roads, that the actual capital investment in movement and per revenue train mile is simply indicative. It is not absolutely accurate. I don't know that this has ever been done before, but it is indicative of the idea of productive efficiency, and that the actual capital investment per revenue train mile operated for these roads is less now than it was in 1900, and in the case of some other roads it is less in terms of total capitalization than it was in 1900.

Mr. Sheean: In this table, Mr. Lauck, would that M. K. & T. we were talking about, 44 tons, and 160 tons trainload, supposing the capital remained just the same, supposing the capital and equipment and everything else remained just the same, but they moved the 44 tons with that equipment in 1900, and moved the 160 tons in 1913, that would show in this table as an increase?

Mr. Lauck: Yes, that would show in this table as—

Mr. Sheean: A decrease in the capitalization with reference to the tonnage?

Mr. Lauck: Yes.

Mr. Sheean: Or in reference to the revenue.

Mr. Lauck: This is simply submitted as indicative of a tendency among certain roads—most of the roads show an increased capital investment, and of course most of them show an increased capitalization per revenue train mile, but here are a number of roads that show that to bring about this great game in productive efficiency there has been for each revenue train mile operated, a decrease in their capital outlay.

Mr. Byram: Are these representative roads in this territory?

Mr. Lauck: Some are and some are not. The Atchison is a representative road. Some are very small roads.

Mr. Sheean: You took all in the territory that you found, showing a decrease?

Mr. Lauck: These are all that show a decrease.

Mr. Sheean: And all other roads in the territory, except the roads here enumerated, would show an increase.

Mr. Lauck: Would show an increase. So I lay no great stress on this, but just cite it.

On page 1, in the case of the Atchison, Topeka & Santa Fe,

we find that there was a decrease in the property investment of 1913 as compared with 1900, of $5.52 per revenue train mile operated, which was attended by the productive gains in the Atchison that have already been spoken of, of 93 cents gain in revenue train mile earnings, an increase of 117 per cent in traffic units, an increase of 161 per cent in ton mileage, and an increase of 62 per cent in the freight train load. In other words, on this railroad, in addition to the tendency towards decreased labor costs per unit of output, you had a decreased capital cost per revenue train mile moved, and surely, no additional return should be claimed by capital on this basis.

Another remarkable thing, section 3, on the Chicago, Rock Island & Pacific; the Chicago, Rock Island & Pacific shows a decrease of 47 cents in cost of road and equipment for each train mile operated, accompanied by a gain in train mile earnings of 43 cents, and an increase in total traffic, by this arbitrary classification of 207 per cent, of ton mileage of 199 per cent, and of freight train load of 62 per cent.

Mr. Sheean: I do not follow you, Mr. Lauck, comparing 1900 with 1913, in view of what you said yesterday, that there has been a decreased capital cost to the Rock Island and a greater productive efficiency, one of the few roads in this territory which, on your way of figuring, shows a greater productive efficiency and a decreased capital cost.

Mr. Lauck: Yes. The point that I am developing is, that from a capital standpoint, in the case of some roads, there was a decreased cost; that it was not the result of more capital investment per revenue train mile, but less capital investment.

Mr. Sheean: Well, the Rock Island is one of those that has a decreased capital?

Mr. Lauck: That is the actual capital, you understand. I am not talking about the two holding companies and other capitalization features; I am speaking of the actual investment in the road. If you take the Rock Island as an operating unit and separate it from its financial management, it shows 47 cents less investment per revenue train mile now than it did in 1900.

Mr. Sheean: Well, that is taken from the returns to the Interstate Commerce Commission?

Mr. Lauck: Yes, sir, just the actual investment.

Mr. Sheean: The same returns, from which, as I under-

stood you yesterday, you made some explanation as to why, with increased train loads hauled on the Rock Island, increased loading and increased tractive effort, you brought them down, in one of your exhibits, nevertheless, to a declining efficiency of engineers and firemen.

Mr. Lauck: Yes.

Mr. Sheean: Or is there any relationship between the two?

Mr. Lauck: The Rock Island shows a gain of 62 per cent in its freight train load, a gain in revenue train mile earnings and a movement of a much larger traffic with fewer train miles; but when we apply the arbitrary formula which I attempted to use to show this tendency, per $1,000 invested in engineers, we get a decreased productive efficiency. Now, there is nothing conflicting between that and this. That is, you have an increased capital efficiency here amounting to 47 cents less investment. That is, if you were paying 5 per cent for your capital, for each train mile operated, you would save about two cents, but the showing in the other table does not conflict with this, but I am unable to explain it.

Mr. Sheean: I did not want to interrupt, but I thought there might be some relationship.

Mr. Lauck: I cannot explain it any further than we did go into that. The Chicago, St. Paul—

Mr. Sheean: Just in that same connection, as to the language, again, on that same page, about the Rock Island, you say "The following table shows in a summary form the absolute gains in productive effciency of labor on the Chicago, Rock Island & Pacific."

Mr. Lauck: Yes.

Mr. Sheean: Where is the productive efficiency of labor shown, or is it simply the productive efficiency of labor, capital and everything combined?

Mr. Lauck: Well, I have used that phrase all the way through. I think there would be diverging views about that. It seem to me, if it takes less capital, surely the gain must be partly attributed to the labor, at least, if there is a productive efficiency of the road.

Mr. Sheean: But, I thought you said yesterday, going back again to that other exhibit, that working it out there, you showed

on this same railroad a diminished productive efficiency of the only class of labor to which you tried to segregate it?

Mr. Lauck: Yes, I cannot show it on that road, because I have not the factors to go into it.

Mr. Sheean: Well, you have the same factors that you used on other roads?

Mr. Lauck: Yes, I will acknowledge that freely.

Mr. Sheean: And using the same factors you used on others, it would show a decrease on the Rock Island?

Mr. Lauck: Yes, sir.

Mr. Sheean: Then, is not this sentence somewhat misleading, that it shows gains in productive efficiency of labor?

Mr. Lauck: To the extent that if we hold that the formula should apply, it is misleading, but I do not know why the formula does not apply over there.

Mr. Sheean: Except that it does not produce the result you would like to have?

Mr. Lauck: No, I have not sufficient facts to know.

Mr. Sheean: Well, you have all the facts, have you not, that you have as to all the other railroads?

Mr. Lauck: Yes, that is true.

Mr. Sheean: The only point I was making here was as to whether or not the productive efficiency of labor is properly used, even on your own exhibits.

Mr. Lauck: I think if there was a decreased capital cost you might say it was productive efficiency of capital. As I say, I have thought a good deal about that, and I have used that phrase, but I do not want to claim that that is true, because I am perfectly willing for you to call it productive efficiency of capital, with the decreased cost.

Mr. Sheean: All, through this exhibit, you mean?

Mr. Lauck: Yes.

Mr. Sheean: Or strike out the words "of labor?"

Mr. Lauck: Yes.

Mr. Sheean: And let it stand simply showing gains in productive efficiency?

Mr. Lauck: Make it joint, yes.

Mr. Stone: Would it not be possible to have all the capital invested on the Rock Island, and if labor did not do anything it would not produce anything, would it?

Mr. Lauck: No, there must be co-operation, in every kind of productive enterprise, of course. But it is impossible to separate one factor and say, thus capital did, and thus labor did. But the tendency here would be, it seems to me, after more careful reflection, to give more credit to capital, because capital was doing more per unit of output than formerly.

Mr. Stone: Well, was not labor doing more, too?

Mr. Lauck: It would have been doing more, but we cannot find out why, we cannot show that.

Mr. Stone: All right, we have lost that one. then.

Mr. Lauck: Yes. Of course, all the indications are there that labor was doing a great deal.

Mr. Stone: You would have a hard time making the men on the Rock Island believe they were not doing it, if you went out and talked to them.

Mr. Lauck: Of course, they had larger train loads and handled the traffic with fewer train miles.

Mr. Sheean: And they know they paid the engineers and firemen more money. We all agree about that, from the reports.

Mr. Lauck: Yes, but we know that they got more traffic over the road with fewer train miles. Now, they may have loaded those trains up with engineers and firemen, I do not know; but it added to the outlay.

Mr. Stone: We are quite positive in our own minds that the engineers and firemen worked harder than ever before for the little they got, so that the honors are probably even.

Mr. Lauck: I do not care to take up more time with this exhibit, except that in Section 2 I would like to indicate there what it shows. Section 2, page 9, does show capitalization in terms of securities, total capitalization, stock and funded debt, in the case of some roads, showing a decreased amount of securities per revenue train mile operated.

I simply put in this exhibit as further corroborative of increased productive efficiency, whether of capital or labor, primarily, I would not care to judge; but it does further elaborate the idea that there has been decreased capital cost as well as decreased labor cost, revenue train miles having been moved with a smaller capital investment per revenue train mile.

Mr. Stone: Take up next Exhibit 37.

Mr. Lauck: The next exhibit which I wish to present is

entitled "The Practice of the Railroads, Prior to the Year 1907, of Charging Permanent Improvements to Operating Expenses."

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 37, January 7, 1915.")

Mr. Lauck: This exhibit is not submitted in any spirit of criticism, for the reason that such charges were perfectly proper prior to the year 1907, and it was simply a matter of charging permanent improvements to operating expenses, rather than to income, as at the present time.

Since 1907, the Interstate Commerce Commission has required that all improvements should be charged to income, when they are made from surplus earnings, and not to operating expenses; the idea being, of course, to get, as nearly as possible, a clear statement of what operating expenses really are.

I am submitting this exhibit to show that certain claims which may be made or have been made as to labor costs affecting the operating ratio prior to 1907, may not have been due to labor, but have been due to permanent improvements which were charged to operating expenses.

I would like to read from page 1, just one paragraph from an article which was written by Mr. Delano, formerly of the Wabash Railroad, now a member of the Federal Reserve Board, in which he speaks of this practice.

Mr. Delano, in an article in the Journal of Political Economy for November, 1908, entitled "The Application of a Depreciation Charge in Railway Accounting," freely acknowledged the wide extent to which additions and betterments in past years had been charged by the railroads to their current operating expenses. His statements in this connection are as follows:

"The obsolescence of equipment and of structures has been cared for in the past on many railroads in a manner which has been perfectly fair to the stockholders and to the public, by replacing such equipment or structures with new, whenever financial conditions would permit it. Thus, in good years, cars or locomotives have been discarded (that is to say, either sold or torn down at a specified rate per month), and the cost of replacing them with modern cars or engines, less the salvage charge, has been quite generally charged to cost of operation." Skipping the next line, "On some lines, cars and engines have

been bought on the installment plan and the entire cost, spread over a period of say ten years, has been paid out of income."

Unless there are any further questions, I do not care to go into this. I submit this in further elaboration of the claim that increased operating costs have not been primarily due to increased outlays for locomotive engineers and firemen.

Mr. Sheean: Right in that connection, the same point, I think, is developed that I spoke to you about this morning. Let us see if we agree—

Mr. Lauck: Yes, sir, right on the same point

Mr. Sheean: I presume you have observed in your Exhibit 33, where you compare from the period of 1909 down to 1913, turning to page 7 of that exhibit, that the relationship of the costs of engineers and firemen combined, the labor cost of transportation and all, run along very much more nearly parallel lines than when you carry it back to the previous period.

Mr. Lauck: What period is that, Mr. Sheean?

Mr. Sheean: That is the period from 1909 to 1913.

Mr. Lauck: Yes, that is the period of good accounting.

Mr. Sheean: Yes. Now, in the previous period, as this article shows, the operating expenses, to which you have referred on the chart covering the wider period might be an entirely different base on different railroad companies?

Mr. Lauck: O, yes.

Mr. Sheean: So that there would naturally be, in view of what is stated here, a very much greater disparity in any comparison that covered the period preceding the time of uniform accounting with respect to operating expenses?

Mr. Lauck: There might be all kinds of variations, due to the lack of uniformity in accounts and the differences in practices between then and in 1907, when the uniform accounting system was applied.

Mr. Sheean: Yes, so that when you get back of this table, back of your Exhibit 33, I mean in either 31 or 42, covering those other periods, you may have not only a difference in operation but an entirely different system of accounting, either or both of which might bring about the disparity shown in the previous period, or a combination of both?

Mr. Lauck: It might affect it. I would not say it would show the disparity. I say it would affect it, yes.

Mr. Sheean: The amounts here set out, carried into the operating expense of one company and omitted from the account of another company, would make a very great difference between those two companies; whereas, if they accounted on the uniform basis which they have since 1908, there would appear to be uniformity between them?

Mr. Lauck: Yes, that is, there would be uniformity of method.

Mr. Sheean: Yes.

Mr. Lauck: With but one exception, Mr. Sheean, which I was going to take up in the next exhibit, and that is, depreciation charges. I will speak of that when I get to the next exhibit. If there are no further questions I will take up the next exhibit. This exhibit, as I explained, is submitted simply to further accumulate evidence as to the point that increased operating costs are not primarily due to locomotive engineers and firemen.

The next exhibit I would submit is number 38, and it is entitled "Depreciation Charges of Western Railroads, 1908 to 1914."

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 38, January 7, 1915.")

Mr. Lauck: It seems to me that this is a somewhat technical point, but it is a very important point to consider in taking up the tendencies in operating costs on western railroads, and is explanatory of the increase in the operating ratio.

In 1907, the Interstate Commerce Commission forbade the railroads to any longer make charges of additions and betterments or capital charges to operating expenses, and required that they should set up an account for accrued depreciation, charging off each year a rate of depreciation on their equipment against operating expense, in accordance with the experience of the railroads in the deterioration of their equipment; this charge providing for the depreciation which would occur between renewals and repairs.

The result has been that most of the railroads, not having followed a system of accounting before this, where they made depreciation charges, and not taking it up for several years after the Commission had made the ruling, the result of this practice has been to greatly increase the operating ratio within

recent years; and the method has been to make a charge of depreciation of equipment to operating expenses, which added to the total operating expenses, and consequently to the ratio of operating expenses to operating revenues, and to set up in the balance sheet of the company an account called reserve for accrued depreciation, without putting on the other side of the balance sheet any reserve for accrued depreciation, in the case of most railroads.

The net result, therefore, was, by this system of accounting, the operating ratio was increased; the margin between operating expenses and revenues was decreased; there was a tendency to show a decline in net operating revenue and a tendency also to show a decline in credit surplus in profit and loss, while the money that should have gone into the reserve on the other side of the balance sheet simply went into the general assets of the company.

That is a somewhat technical explanation, but the point I wanted to bring out here is that the operating ratio has been increased by this tendency in depreciation charges, and it seems to me a large part of the criticism which has been borne by the employes for bringing about increased operating costs, is partly attributable to this factor. That is, the ratio has been increased, and it has been attended with these other two results. That is, by the use of this depreciation charge a railroad can make its net revenue almost anything it wants to make it, within a reasonable statement of that, or can make its surplus account—can reduce it or make it smaller than it really is, under the present system of accounting.

Mr. Stone: Then, a fluctuation of 10 per cent, one way or the other, really becomes a matter of book-keeping, a matter of a charge in this account.

Mr. Lauck: Yes. If you are operating a ratio and had unusual revenues, under this system of accounting you could make a heavier depreciation charge, thereby showing smaller net revenues and increasing your reserve for depreciation and showing a comparatively smaller surplus credit than you would otherwise show, if you had made a proper depreciation charge.

Mr. Park: Has there been a tendency to a fixing of a uniform depreciation charge?

Mr. Lauck: No, sir.

Mr. Park: That is optional with the road?

Mr. Lauck: The Commission has not prescribed any rate.

Mr. Park: Does the tendency indicate that there will be a uniform rate, or can be?

Mr. Lauck: I think there is a tendency toward applying the system and increasing the rate each year now, which, in its way, is a proper system of accounting, and to which I take no exception whatever; but which has the effect of increasing the operating ratio and which I am citing in this instance as attempting to relieve the employes of the blame of increasing the operating ratio, when it is due to depreciation charges.

Mr. Byram: The charging to operating expenses of the actual depreciation of equipment has always prevailed, hasn't it?

Mr. Lauck: Yes, sir.

Mr. Byram: Now, how has the money cost of that depreciation been taken care of before?

Mr. Lauck: By charging to operating expenses.

Mr. Byram: Direct?

Mr. Lauck: Yes, sir, as Mr. Delano said, when they had a good year they bought new equipment and repaired the old equipment, and built stations and new bridges.

Mr. Byram: What is the difference between charging it to operating expenses direct, and charging it to operating expenses through a depreciation charge?

Mr. Lauck: From the standpoint of accounting, this old system led to permanent additions and betterments being included in operating expense, and therefore tended to show an operating ratio that did not actually represet operating costs. Therefore, it was abandoned. This method is perfectly proper, I think.

Mr. Byram: But operating expenses always have, necessarily, taken care of the money used in connection with depreciation of equipment.

Mr. Lauck: Prior to 1907.

Mr. Byram: Only in another form?

Mr. Lauck: Yes.

Mr. Byram: That has not changed the fact that operating expenses have always had to carry, necessarily, the actual cost of depreciation of equipment.

Mr. Lauck: Prior to 1907, however, that led to many abuses.

Mr. Byram: The actual depreciation cost was in there?

Mr. Lauck: The actual depreciation cost was in there.

Mr. Byram: Had to be there?

Mr. Lauck: Yes.

Mr. Byram: Your complaint, if I understand it aright, is that at that time, prior to 1907, other items were also charged.

Mr. Lauck: Exactly, yes, sir.

Mr. Byram: But the actual depreciation of equipment, the money cost of it, has always been charged to operating expenses?

Mr. Lauck: Yes, sir.

Mr. Nagel: You say if it had been properly charged in the past, it would not look so large now?

Mr. Lauck: Prior to 1907, that is, when they had a good year, why, everything was fixed up, as I understand it, and when they had a bad year, why, they cut down their expenses according to Mr. Delano's article, and according to other things I have read on the subject; but it was abused by the fact that additions and betterments and permanent capital outlays were included in the operating expense which should have really been charged to the capital of the company. So, the Commission decided to make a change. Then, when the Commission prescribed these new rules, the railroads have been just gradually adopting them. The tendency has been to add depreciation charges, which, since 1910, have increased the operating ratio, as compared with 1907, and has tended to show a larger amount of operating revenue being absorbed by operating expenses, and I want to point out that is due to depreciation charges, and not due to locomotive engineers and firemen, or increased labor costs.

Mr. Byram: You said depreciation charges are heavier now than prior to 1907. The actual depreciation charges are greater now, since 1907, than they were before?

Mr. Lauck: I have no means of measuring them before.

Mr. Byram: I thought you were making a comparison to show there was a difference.

Mr. Lauck: No, I am making a statement to show that, since 1910, practically, there has been a tendency for the railroads in the west, as well as in other sections, to put into force the Commission's requirements as to depreciation charges,

which have increased the operating ratio; but this increase, I wish to call to the attention to the Board, as being attributable to this fact and not to increased labor costs.

Mr. Byram: I understood you to say, in answer to my question, that the actual money cost of depreciation always has been charged to operating expenses.

Mr. Lauck: Exactly, but there was an interregum there, from 1907 to 1910, and there is practically no evidence of it, to any extent much, anywhere. After the new rules were promulgated and were being put into effect,—they have not really been actually put into effect yet—there is no rate prescribed. Take, for instance, I think it was the Rock Island was found to be charging the Frisco one-quarter of one per cent on the equipment, on the assumption that the equipment would last about four hundred years, while another road may be charging 5 per cent—a well managed road.

There has been no uniformity of practice yet. The Commission has prescribed no rate.

Mr. Byram: That merely means that the depreciation charge is deferred—it must be taken care of eventually?

Mr. Lauck: It must be some time, yes, sir. The fact that they are beginning to accumulate now the rate increases, increases the operating ratio and of course makes it seem as if there was an added cost to operation, and I want to claim the point that that is due to depreciation and not due to added labor cost, or added cost for locomotive engineers and firemen. That is all the point I have in bringing it out at the present time.

Mr. Sheean: The charge for depreciation is only depreciation of equipment, isn't it?

Mr. Lauck: Yes. I have made it to investment there, because I do not know what the equipment is—there is no separation in the report.

Mr. Sheean: But under the rules of the Interstate Commerce Commission, the new rules of 1908, they only show a depreciation charge on equipment.

Mr. Lauck: Exactly, yes, sir.

Mr. Sheean: Nothing is there shown for the wear and tear, or depreciation of stations, or any of the property, other than equipment?

Mr. Lauck: No.

Mr. Sheean: So that, as a matter of fact, if the railroads were permitted, or required to do, under the Interstate Commerce Commission's rules, what prudent business men do in the matter of replacing their roundhouses, depots, and other property, there would be, in fact, a larger sum charged here.

Mr. Lauck: Yes. They ought to do that, I think.

Mr. Sheean: So that, instead of there being too large a charge to depreciation, the fact is, under accounting methods, they do not as yet charge into operating expenses what the ordinary business man does to take care of depreciation of his plant or factory—that is true, isn't it?

Mr. Lauck: I fully accept that, yes, sir. I simply want to make this point, that I am interested in, that this operating ratio has been affected by the tendency of railroads, within recent years, to apply the rules of the Commission, and therefore not to attribute that to labor—the depreciation charge.

Mr. Sheean: But if you were permitted to do what prudent business men, operating a factory or a plant do, in the way of setting up a proper depreciation charge, you would increase the amount charged here, would you not?

Mr. Lauck: I think so, yes, sir.

Mr. Sheean: So that no matter whose fault it was, or where it was being absorbed, there would be a still larger amount of the apparent revenue of the railroads taken up from year to year, than is taken up in the present operating ratio?

Mr. Lauck: Yes, there would be more taken up. I think, further, along that line, that the railroads should be required to set aside a reserve fund to cover this accrued depreciation, and should not be permitted to simply set up a liability account for accrued depreciation, which tends to conceal the real financial resources of the railroads. That is, under the present system—

Mr. Sheean: That is again a different question, isn't it, Mr. Lauck?

Mr. Lauck: Yes.

Mr. Sheean: And in that connection, no matter how conserved or how guarded, after setting it up, you do think that the railroads should, in fact, write off or provide, rather, for greater depreciation out of their operating revenues every year, than they are now doing?

Mr. Lauck: I think that they ought to provide depreciation, based on their experience of the deterioraton of their equipment and roadbed, and structures, which I understand they have not done up to the present time.

Mr. Stone: You do not hold that that should be held against labor?

Mr. Lauck: No.

Mr. Sheean: It would be bringing the result, would it not, or showing a closer approach of the operating expenses to the total income of the company?

Mr. Lauck: It would cause a decline in net revenue, yes.

Mr. Sheean: Yes.

Mr. Lauck: And for that reason I say, on the balance sheet, you ought to set up a reserve fund for accrued depreciation, instead of carrying the liability account and having no funds to meet the depreciation.

Mr. Stone: This depreciation you do not hold should be allowed to hide away the funds of the railroads, do you?

Mr. Lauck: No. The point I was just mentioning is that at the present time, as we mentioned this morning, there is over $200,000,000 of accrued depreciation on the liability side of the balance sheet, which represents a profit and loss credit of that much and really conceals the real resources of the company to that extent.

Mr. Stone: It is actually a resource of the company, to that amount?

Mr. Lauck: Well, the depreciation is not, but it reduces the profit and loss credit surplus to that extent.

Mr. Stone: It is the same thing.

Mr. Lauck: In the same amount, yes.

Mr. Stone: In all this depreciation, you do not find any accrued depreciation or any fund set aside to take care of the human machine when it is worn out with this heavy power and heavy tonnage, do you?

Mr. Lauck: None at all, no, sir.

Mr. Stone: You are going to throw him on the scrap pile?

(No response.)

Mr. Sheean: Mr. Lauck, I notice on this exhibit, in glancing through it, at page 6 you apparently change the columns. I

thought it might be well to explain, while we have it before us, why the number of columns seems to be reduced.

Mr. Lauck: I did not have time to work them out.

Mr. Sheean: It is a reduction in number?

Mr. Lauck: Yes.

Mr. Sheean: It shows, after page 6, only a part of the things?

Mr. Lauck: It shows the number but not the effect on the operating ratio. On page 2, you see I have gotten the amount of depreciation from the Interstate Commerce Commission's records, which, for these ten representative western railroads, was $20,000,000 in 1914, as compared with only $10,000,000 in 1908. The ratio of that to the investment advanced from .41 per cent to .59 per cent, and that affected the operating ratio 2.73 per cent in 1914, and 1.75 per cent in 1913; while in the table you refer to, I left out the derivative computations as to the effect on the operating ratio. Is that clear, Mr. Sheean? It is just a matter of not having time.

Mr. Sheean: Just glancing at it, I thought there might be a difference due to the fewer number of columns.

Mr. Lauck: No. You will find in looking through the exhibit some roads reported the cost of the equipment, and therefore you can work the ratio as to the equipment. Others did not.

I do not care to go into that further and take any more time in a technical discussion of this kind; I simply want to submit it to develop this point, that labor is not responsible for the increased operating ratio, entirely.

Mr. Stone: Our next exhibit is No. 39.

(The document so offered and identified was received in evidence and thereupon marked "Employes' Exhibit No. 39, January 7, 1915.")

Mr. Lauck: The next exhibit which I wish to present is No. 39. It is entitled "Revenue Gains by Representative Western Railroads Available to Compensate Locomotive Engineers and Firemen for Increases in Work and Productive Efficiency."

This is the conclusion, practically, of the productive efficiency argument which I have been endeavoring to put in.

Referring to page 1, I show a total for forty-three representative western railroads, for the period 1909 to 1913. The

method of the preparation of this exhibit—if you will refer to page 6, I can work out the method—I have taken the yearly average of operating revenues and operating expenses for the five years ending June 30, 1908, and the five years ending June 30, 1913, and have shown the increase for 1913 over 1908, or for the last five years over the preceding five years, giving a net revenue gain of $81,363,174. Then, deducting from that the increase in taxes, leaves a net revenue of $67,000,000, in round numbers. Adding to that the other income to the railroads, from other than rail sources, you have an increase in gross corporate income for the latter period, as compared with the former, of $122,321,295. Deducting from that all deductions except interest on funded debt and appropriations for reserves, etc., it leaves a net amount available for distribution to capital because of additional investments, to labor because of increased efficiency, and to reserve for emergency purposes, of $96,000,000, in round numbers.

Then, referring to page 5, you will find the increased property investment of these 43 representative western railroads for the period under consideration, 1909-1913, amounting to a net increase in property investment or capital commitment of $1,338,518,825.00 at the top of the page. Investment in road and equipment.

Allowing interest on that—before doing that, I do something that may not be accepted, but which seemed to me to be proper; that is, I took from that property investment what had been put into the property investment out of earnings it seemed to me that the property investment which was made from the earnings of the railroad itself was in reality an added outlay to stockholders, and in addition to any cash dividends and should not probably, strictly speaking, be allowed in interest return, but to my mind it should be; but, if it is thought that it should not, I am perfectly willing to concede that.

Turning, then, to page 6 again, we have an expenditure for property, road and equipment during the past five years, amounting to $1,231,000,000 for these railroads or, less amount appropriated from income, $1,141,591,997.

Allowing a rate of return on that of 4 per cent, we would have the interest charge to be made against that of $45,000,000 in round numbers. Subtracting that from the net amount avail-

able for distribution to new capital investments or to compensate increased labor efficiency, you have a balance remaining to compensate increased labor efficiency, after a fair return to capital and to appropriate for reserve, of in round numbers $50,000,000 for these 43 representative Western railroads.

Mr. Sheean: What would be a proper charge for depreciation covering a period of five years?

Mr. Lauck: Beg your pardon?

Mr. Sheean: How much would you say would be a proper charge for depreciation? What is an ordinarily charged depreciation charge on capital invested on property that has a certain short life?

Mr. Lauck: It depends altogether on the property, of course. It may be a long time.

Mr. Sheean: I was wondering whether or not you had anywhere in the table any segregation as to what the charge for depreciation was.

Mr. Lauck: Only so far as the railroads charge it themselves.

Mr. Sheean: Well, do you make that deduction from this $50,000,000?

Mr. Lauck: Yes, that is made in the property investment. That is taken care of in the balance sheet by excluding the reserve which has been created for property investment, which is supposed to be in the assets of the railroad.

Mr. Sheean: Oh, then you do deduct the part that has been charged, but make no effort to compute what the additional amount should be? I understood you to say a little while ago you recognized that there ought to be some further charge for depreciation, but you ventured no suggestion as to what it should be.

Mr. Lauck: Oh, no, not at all; no, sir. If it should be thought proper to make such a deduction, it would have to come out of the $50,000,000 that is available.

Expressing that in graphical form, this circle represents the $96,000,000 which was available for remunerating capital for increased investment, and which might be also available for increased labor efficiency, or for appropriations for any kind of emergency reserve, and—taking the rate of 4 per cent, about which there will probably be some dispute—that was a fair

rate though before the war broke out, 4 per cent was about what the railroads were paying, of course, they will have to pay more hereafter, but taking 4 per cent and allowing the return for the increase investment of $1,141,000,000, you will still have 52 per cent, or $50,000,000 plus available for remuneration of increased labor efficiency. And these circles here represent in the diagram, if you would grant on the basis of the present outlay for engineers and firemen, 10 per cent increase, it would require this much; 15 per cent increase would only require this much; and 20 per cent would take a line from this point to here.

Mr. Sheean: How many years at 4 per cent are you putting in on this five year statement? One year's interest?

Mr. Lauck: This is on the basis of income per year.

Mr. Sheean: Yes, but you have arrived at your $1,000,000 by creating a five year period.

Mr. Lauck: Take the average for the five years. I thought it would be fair to take the average, fairer than it would be to take one year. I compare the income increase with the capital increase, and use a five year average to get the annual increase, which is—

Mr. Sheean: Well, but do you do that? Do you, after getting the total, 1913, and comparing it with 1908, do you then make any distribution of that as between years, or is this on page 6 the total increase for the whole five year period?

Mr. Stone: You took an average year in each five year period.

Mr. Lauck: That is the increase of 1913 over 1908, using the year 1913 as the average for the five years ending 1913, and the year 1908 for the five years ending 1908. There are always grave objections to taking one year, and I took the average for each five year period, instead of one year. Then, all the increases are 1913 to 1908, this average for five years. The $96,000,000 represents the increased amount of revenue which has been produced and the $45,000,000 represents an allowance for the return on the increased property investment, or investment in roadway and structure and equipment, leaving a balance of $50,000,000, which is available of course for the compensation of all kinds of labor. That is not available for the compensation of locomotive engineers and firemen.

Mr. Byram: On the showing of your Exhibit number 23,

the productive efficiency of engineers during this same period, amounting to, in the case of engineers, 5.12 per cent, and of firemen, 4.97 per cent, how much of that $50,000,000 are the engineers entitled to?

Mr. Lauck: I would be unable to answer that, Mr. Byram. I would not want to accept those percentages myself. Not that I do not think they exhibit a tendency, but I do not know what the engineers ought to get out of this.

Mr. Byram: As I understand, you are trying to prove they are entitled to something?

Mr. Lauck: Yes, they are entitled to something.

Mr. Byram: And, as I understand, you have by all these exhibits been attempting to show the increased productive efficiency of engineers and firemen?

Mr. Lauck: Yes.

Mr. Byram: Now, you have shown how much money the railroad have available to pay these men for their increased productive efficiency.

Mr. Lauck: Yes.

Mr. Byram: Now, according to your statistics in this table for the same period that we are now discussing, the productive efficiency of engineers has increased 5 per cent and firemen 4.97 per cent. Now, then, according to that showing, how much increased wages are these men entitled to?

You have shown that the railroads have the money to pay it. You have shown that the men have increased their efficiency 5 per cent during that time. Now, how much are they entitled to in increased wages on the basis of productive efficiency?

Mr. Lauck: Well, if that percentage were accurate (which I do not claim it is—I claim it shows a tendency) I have very distinct ideas myself as to how they should participate, but I do not think it would be of any value to the Board.

Mr. Byram: I thought you were arguing for increase of pay.

Mr. Lauck: I am not arguing for increase of any amount. I am showing there has been an increase in the productive efficiency.

Mr. Byram: And that has been 5 per cent?

Mr. Lauck: And that has resulted in revenue gains.

Mr. Byram: Of $50,000,000?

Mr. Lauck: Yes, that are available for payment of all classes of labor.

Mr. Byram: Now, there ought to be some calculation drawn according to these figures of what these men are entitled to.

Mr. Lauck: My calculation would be that each factor engaged in producing this result should share according as it contributed toward the result.

Mr. Byram: That would even reduce this below 5 per cent as far as the enginers are concerned?

Mr. Lauck: If you accept that basis of distribution.

Mr. Byram: That is what we have been spending several days to talk about.

Mr. Stone: May I ask you a question, Mr. Lauck?

Mr. Lauck: I do not wish to evade that, but I simply do not know what would be a fair measure.

Mr. Stone: Do I understand that this black here means that the railroads have already got their 4 per cent out of the capital investment? Is that right?

Mr. Lauck: Yes, that is available.

Mr. Stone: Then, this white that is left, that is going to be the pleasant duty of this Board to divide up and see what share of it we get, is that it?

Mr. Lauck: That is my idea of it, yes. Some of that has to be appropriated for emergency reserve, like taking care of floods on the Illinois Central, and measures of that kind.

Mr. Stone: Well, there would still be quite a section of the white left, even after we were granted a reasonable increase, wouldn't there?

Mr. Lauck: Well, there should be, yes. I am not attempting to show any hard and fast calculation as to dollars and cents, simply a tendency. I am not attempting to say to the Board what amount of money the engineers and firemen should get. I am attempting to develop this argument.

Mr. Park: Have you taken into consideration a question of this kind, that the Interstate Commerce Commission is requiring railroads to standardize their equipment? It is estimated that will cost about $50,000,000 over and above the regular maintenance charge? You do not take cognizance of anything of that kind?

Mr. Lauck: Well, it seemed to me that the employes should not be required, as the result of their increased work and productive efficiency, to meet that.

Mr. Park: But the stockholders have got to take it out of this money available to make these changes in the cars?

Mr. Lauck: If the stockholders were not getting their fair return after that was done, I should have recourse to increased freight rates.

Mr. Park: I see.

Mr. Lauck: That would be my way of arguing that out. Following the idea that if the public wants these things they should pay for them, but the men should not be made to pay for them.

Mr. Park: You answered Mr. Stone by saying some of this should be held in reserve. It appeared to the railroad management that they must hold it in reserve for just such items that they are confronted with as this standardization of freight equipment.

The Chairman: Well, I guess we will adjourn.

(Whereupon, at 4:55 P. M. on the 7th day of January, 1915, an adjournment was taken until Friday, January 8, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 8, 1915.

Met pursuant to adjournment at 10:10 A. M.
Present: Arbitrators and parties as before.

The Chairman: You may proceed, Mr. Stone.

W. JETT LAUCK was recalled for further examination and having been previously sworn, testified as follows:

Mr. Stone: All right, Mr. Lauck.

Mr. Lauck: At the time of adjournment yesterday I had concluded with Section 1 of Exhibit 39, entitled "Revenue Gains Available to Compensate Labor for Increased Productive Efficiency." If there are no further questions I will proceed to Section 2.

Mr. Stone: I should like to have you go through that in detail, if you will, Mr. Lauck, because I think it is very important.

Mr. Lauck: Referring then to page 6 of Exhibit Number 39, which is the basic data for this table, I might explain the different items appearing in that table, if it is deemed necessary. Operating revenue is the revenue from rail operations. Operating expense is the expense of conducting rail operation. The net revenue is the difference, of course, between the gross expenses and the gross revenue. Taxes are the amount of taxes accrued, and the net income is the subtraction of taxes from

the net revenue. Other income consists of income from other sources than rail operations. It might be income from outside operations or income from other investments or other activities of the corporation.

Mr. Sheean: On that, would that include, for instance, the matter you spoke of here the other day of the Union Pacific owning stock of the Baltimore & Ohio, when you carry out the earnings here in these periods of the Union Pacific, you would include what they got in dividends on the Baltimore & Ohio stock?

Mr. Lauck: This is all other income that they might have as a corporation.

Mr. Sheean: So that in the two periods, by including these items of income, you may have with one carrier showing as part of its income what is shown in the rail operations of another carrier?

Mr. Lauck: Yes, that would be possible. That is, if the Oregon Short Line would pay certain dividends to the Union Pacific, that would be included in the rail operations of the Oregon Short Line.

Mr. Sheean: That is, even a better showing, because both are in Western territory. In that chart of the Oregon Short Line you carry out that income of the Oregon Short Line as available to compensate labor on the Oregon Short Line?

Mr. Lauck: Yes.

Mr. Sheean: Then you would carry out that same amount of money earned by the Oregon Short Line in the way of dividends that went to the Union Pacific as available to pay labor of the Union Pacific?

Mr. Lauck: It would be a part of the corporate income of the Union Pacific, and to that extent, it would be a duplicate in the aggregate showing.

Mr. Sheean: It would be pretty hard to pay labor on both corporations with that same dollar, wouldn't it?

Mr. Stone: Labor is paid before that dollar is deducted.

Mr. Lauck: The labor would be paid on that, on the Oregon Short Line—

Mr. Sheean: The amount available further to pay labor that you speak of here.

Mr. Lauck: Yes, it would be a duplication to that extent.

Of course, with the individual road, it would not, but in an aggregate it would be a duplication and would swell the total amount in an aggregate statement.

Mr. Stone: That would include all these land companies, these terminal land companies, townsite companies, oil lands, mineral lands, coal lands and timber lands?

Mr. Lauck: Yes, sir, every kind of investment that a railroad might have.

Mr. Sheean: Let us see on that. If, previous to 1908, one of the companies owned oil lands and got no income from them, but, in the period from 1908 to 1913, the oil lands were developed, and the oil came out in the latter period, you would show that oil increase as being due to additional investment of capital, where they built a new roundhouse—the case is purely hypothetical?

Mr. Lauck: It would be income available from some investment that they would have from a corporation which would be available to pay returns on other capital investments which they might make, whether roundhouse or—it would not be rails.

Mr. Sheean: What I have in mind is the extreme case. Assuming that the road owned the oil land, or owned the lands previous to 1908, but no return going into their income account previous to 1908, after 1908 they put a million dollars into that railroad by building double tracks, then the oil is discovered or marketed on the land that they owned previous to that time?

Mr. Lauck: Yes, sir.

Mr. Sheean: You would carry out the income from the oil which was available merely in the latter period, as being all distributable to the last million dollars put in for double tracking?

Mr. Lauck: As being available to pay a return on that investment, yes. I consider the gross income. That is, the income would be—the addition to the income would be the net income which this oil company paid to the railroad company if the railroad company owned the oil company.

Mr. Sheean: But you have distributed it in this corporation simply to the capital invested in the latter part?

Mr. Lauck: Yes.

Mr. Stone: Do you take into consideration the increased value of the land after the oil was discovered? Does that show here?

Mr. Lauck: That would show if the oil company was considered at its true value as part of the investment of the railroad.

Mr. Stone: Suppose it was not. Suppose it was like the Southern Pacific where they sold to the Pacific Land Company about nine million acres for five million dollars, and it was really worth about two hundred million dollars; would that show here?

Mr. Lauck: No, sir, that would not show here; that would show just five million dollars. That is, if a corporation owned other corporations and were carrying them at a nominal figure on the books, it would be decidedly to the advantage of the corporation, but if they put in the real value it would be—the return on the real value. Of course, in the case of land companies and oil companies they do not carry them at their real value. Hundreds of millions of dollars that are concealed there, carrying these land and oil companies, especially in the case of the Southern Pacific, having oil and mineral and timber resources, they are variously estimated at from two hundred million dollars, to seven hundred million dollars, which they carry on their balance sheet as a property investment of about thirty-four million dollars, I think.

Mr. Sheean: That is why, in this exhibit, the Southern Pacific shows such an enormous amount available for distribution here to productive efficiency.

Mr. Lauck: What page is that?

Mr. Stone: The efficiency made it possible for them to have money enough to buy this property, did it not?

Mr. Lauck: I don't think the Southern Pacific ever even bought it. They just took it from the California & Oregon.

Mr. Sheean: Page 48 will illustrate, Mr. Lauck.

Mr. Lauck: Their net income from rail operations increased twelve million dollars, their other income ten million dollars; so it would seem to be more of a case of productive efficiency of the railroad, than it would of the income. Page 51 is the table. As a matter of fact, the Southern Pacific, I think is subject to suit now because of the fact that it is holding these lands, not selling them, and not admitting them to development, and it is claimed by the United States Government, that that is contrary to the conditions of the grants to the original railroads, which the Southern Pacific acquired, so possibly there would not

be such a big income from this as might be thought. Timber lands all the way from Portland to San Francisco, I think, are owned by the Southern Pacific, and are not being exploited or developed at all. They are simply being held for increased values.

Mr. Sheean: Well, in this distribution, you have shown the income that has come from 1908-1913 from all of those corporations, whatever they were, as paying interest only on the capital invested since 1908?

Mr. Lauck: Yes.

Mr. Sheean: And if, in fact, all of these properties now paying these dividends were owned, and none of them were acquired since 1908 by the additional capital put in since 1908, you have nevertheless distributed to the capital since 1908 the income which has come to that property.

Mr. Lauck: I have; yes, sir. But if they made these investments prior to 1908, if they really made investments which were unprofitable and paid interest charges prior to that time, of course, the productive efficiency of the railroad paid the return on that investment. They are just beginning to get a return; like we were speaking of stations the other day. As a matter of fact, as regards oil and land, and so on, they never paid anything for the oil or land; that is simply a gift from the Federal government or the State government to these corporations, and is supposed to have assisted them in building the railroad and supposed to have been sold to settlers after the railroad was built, but which the companies like the Southern Pacific and the Atchison and the Northern Pacific have held, contrary to law, and are holding now for the purpose of acquiring additional values from the concentration of control of timber ownership and oil ownership. The Atchison and the Northern Pacific and the Southern Pacific have timber and oil lands, I believe, if I remember correctly, that are equal in area to England, millions of acres, which they are holding and not selling, worth hundreds of millions of dollars, and which they carry at a nominal valuation on their books. Aside from those kinds of investments, I cannot see where this would be very seriously affected, and those—

Mr. Sheean: That is all I wanted, Mr. Lauck, was, if it would be affected.

Mr. Lauck: It would be affected, yes. If there are any unearned increments or any investments made prior to 1908 which have not yielded a return until 1908, they would be affected by this comparison, but I do not think it is a matter of any consequence and would be entirely outweighed by the holdings of other properties which really cost nothing and are beginning to show a return or which are immensely valuable and not carried at their real value.

The next item, gross corporate income, is the gross income of the corporation as such. The deductions from gross corporate income, except interest on funded debt and appropriations for reserves, consist of the items found in the Interstate Commerce Commission report of such items as rents payable for lease of road, hire of equipment and joint facilities, and so forth, and loss on other physical property owned or leased, or adjustments of that kind, and miscellaneous interest on short term notes or accounts which are not considered as funded debt, and have a maturity of less than one year. The net amount available for distribution to capital, because of additional investments, and to labor because of increased efficiency, and to reserve for emergency purposes consists of the difference between gross corporate income and these minor deductions.

Mr. Sheean: Just on that wording, Mr. Lauck, because of additional investments, just how would you justify, or would you justify, as to these matters you have spoken of, that return on oil lands or timber lands, bought long prior to 1908 which have come in in 1913; in just what manner would you justify the statement that the income from that property bought long before then was available for distribution because of additional investment, or because of increased efficiency?

Mr. Lauck: If this property was bought before 1908, assuming it was bought, which I do not assume, because—

Mr. Sheean: Well, assume it was owned, is all I mean, or assume that there were funds now available, since 1908.

Mr. Lauck: That was all cared for, say if it were bought or owned, securities were undoubtedly issued to acquire it; that is, if another railroad was bought, or land was bought, or buildings were constructed, there would be, probably a bond issue or some kind of a security issue to pay for that. That

was all cared for prior to 1908 by the interest payments on funded debt, or—

Mr. Sheean: Assume, then, simply to illustrate, that, as you say, it was given to the railroad previous to 1908; and assume that the returns came in on it after 1908, between 1908 and 1913; in what way would you justify the statement that the money which came in from that after 1908 was available for distribution because of additional investment and because of increased efficiency, there being neither additional investment—

Mr. Lauck: Well, your question is, why should this revenue be used to pay returns on additional investment during this period?

Mr. Sheean: No, my question is, why do you say it is available because of additional investment and because of increased efficiency?

Mr. Lauck: Probably it is a little unhappy phrase there, but the idea is that this money is available to pay interest returns on any investment that may have been made during the period. That is, the idea is to see whether there are funds available to satisfy the demands of additional capital which may have been invested in the road during this period; and after satisfying the requirements of capital, to see whether anything is left for remuneration of other factors of production.

Mr. Sheean: Then, instead of discriminating between its being available because of additional money having gone in during this time—

Mr. Lauck: I would say available for additional capital investment; I would substitute the word for. That would express the idea better.

Mr. Stone: Is it not a fact, Mr. Lauck, that on many of these western roads, the road has been capitalized and new securities issued on the hope of the future, or the fresh aid they thought they would have in future years?

Mr. Lauck: I think that is characteristic of western, and all railroads; that is, the future is discounted by security issues, yes, sir; that is, in anticipation of revenue gains.

Mr. Stone: Or the future development of the country?

Mr. Lauck: The future development of the country and the property, yes, sir.

Mr. Stone: You think the increase in securities has more than kept pace with the development of the property, do you not?

Mr. Lauck: I think it has more than kept pace, because I think that is what is the matter with the financial condition of the railroad at the present time. It is not a matter of operating efficiency, because the operating efficiency has been superb, and the operating official has developed the road to its highest earning capacity; but he finds himself handicapped by the financial administration of the road, as I mentioned yesterday. Did that answer your question, Mr. Sheean?

Mr. Sheean: Yes.

Mr. Lauck: The word "for" would express the meaning I had better.

Mr. Sheean: The net amount available for additional investment; you would strike out "because of additional investment?"

Mr. Lauck: Available to distribution to capital for additional investments during this period.

Mr. Sheean: And if, in fact, that was covered by a bond issue, in the other case that you speak of, and if there was no interest earned with which to pay the interest on those bonds for the fifteen or twenty years that it was idle, you make no allowance in your distribution for paying the accrued interest on those bonds during that period?

Mr. Lauck: No.

Mr. Sheean: That is, you distribute it all to the latter period, or rather, appropriate it?

Mr. Lauck: No, the bond interest would have been paid in the past, not from the proceeds of investment, but from other income of the railroad. Just as, say now, you have to elevate your tracks, or you build your new station in response to public demand, say like in Kansas City at the present time, and the station is unprofitable, they say the Union Station in Washington, as I understand it, is a dead loss to the railroads—the other revenue of the railroads is being used to pay the interest on the bonds issued to construct that station until such time as the station itself may prove productive. All of these interest charges would have been provided for by the interest on funded debt prior to 1908 and would have been taken from the rail operations. or some other revenue source of the railroad, otherwise the railroad would have been insolvent.

Mr. Sheean: You assume that at the beginning of your

period, up to that date, the capital in all the roads has been fully compensated, and that payment has been made up to that time for all investments?

Mr. Lauck: Yes, I assume that.

Mr. Sheean: That is an underlying assumption of all the tables?

Mr. Lauck: That is, that the railroad is a going concern, is a solvent corporation.

Mr. Stone: If you were to go into the market and buy railroad securities, at the market value, you would not expect to make it retroactive and go back and claim interest for the past twenty years, when somebody else held it?

Mr. Lauck: Not at all.

Mr. Stone: You would simply take it from that time on at its market value and hope to get interest?

Mr. Lauck: Exactly.

Mr. Stone: If it was a bonded indebtedness, you would either get your interest or the road would go into the hands of a receiver?

Mr. Lauck: Yes. That is the point I assumed in the past, that the interest indebtedness has always been paid, which has not always been the case. If they did not pay it, it was paid subsequently by reorganization, or going into the hands of the receiver. One characteristic of reorganizations is that nothing is ever wiped out. It perpetuates itself in some form or other. A bond may be substituted for stock and instead of having a bond you may have a prospect, after reorganization. To that extent, your point would hold, I think.

Mr. Stone: For fear the prospect may not be as bright as it might be to the prospective purchaser, you give him two or three extra shares of so much clean gain?

Mr. Lauck: Yes, if he has an income bond or some other form of bond, they usually give him some preferred stock, or common stock, or any other kind of worthless security at that time, to compensate him, on which the productive efficiency of the road afterwards does pay dividends, and that is the trouble with stock issues of that kind, that they afterwards absorb this productive efficiency growing out of operating development of the road by the managers and increased work by the men.

Mr. Stone: So it is the man who works who in the end pays the freight bill—the man who works, he produces this?

Mr. Lauck: Yes, I think the operating manager and the men who work on the road produce these gains that are not always used for physical property and remuneration of the men, but are used for the payment of interest charges on these securities which may have been improperly issued at the time of reorganization, and so on. The expenditures for property, road and equipment, during the past five years, a detailed statement of that is found on the preceding page.

Mr. Stone: Page 7?

Mr. Lauck: Page 5. There we have an analysis of the increase in property investments during the five years, divided into two parts; expenditures for new lines or extensions and expenditures for additions and betterments. Expenditures for new lines and extensions, or for additions and betterments are made either from current assets or through issues of securities, and so forth, or appropriations from income.

Mr. Sheean: Upon that table—I do not understand that part in parentheses, "Excluding reserve for depreciation." In the period prior to June 30, 1908, how much did you so exclude from the investment?

Mr. Lauck: Whatever had been accumulated up to that time. I don't remember the exact figure and I haven't it here, but the property investment account is carried on the balance sheet, as you will recall, as investment cost of road and equipment, and then accrued depreciation, and then net cost, excluding accrued depreciation.

Mr. Sheean: I understood yesterday that down to 1908, or since 1908 there had been a great change in the matter of what was reserved for depreciation?

Mr. Lauck: In 1907, new rules were promulgated.

Mr. Sheean: You have taken the total investment in road and equipment, as shown on June 30, 1913.

Mr. Lauck: Yes.

Mr. Sheean: That would be a very much larger amount than $5,773,000 before writing off the accrued depreciation, would it not?

Mr. Lauck: There would be four years of accrued depreciation which would have been cared for by operating expenses,

and a corresponding amount of funds would have been carried to the general assets of the company, and for that reason I excluded it. That is, the net investment; you have already provided for that out of operating revenues.

Mr. Sheean: But in the preceding years, before this time, the writing off of that depreciation, in that year—

Mr. Lauck: Before 1908.

Mr. Sheean: Before 1908—a different method of accounting was used by the railroads?

Mr. Lauck: Yes, sir.

Mr. Sheean: I would like to have just what the total is that you exclude from the first five-year period, and what the total is excluded from the last five-year period, because of the different methods of accounting.

Mr. Lauck: In the first period I only excluded probably one year.

Mr. Sheean: You excluded one year out of a total five-year period?

Mr. Lauck: Yes.

Mr. Sheean: And in the last period you excluded the total five years?

Mr. Lauck: Yes; but in the first period, as Mr. Byram stated yesterday, the depreciation had been already cared for by operating expenses, so it would be only necessary to exclude one year.

Mr. Sheean: Now, in your operating expense, then, previous to 1908, as shown on page 6,—the operating expense is taken from the operating expense account of the railroads?

Mr. Lauck: Yes.

Mr. Sheean: And the two accounts, in the two different periods, mean two different things, do they not—that is, they include items during the one period that they do not include in the other period?

Mr. Lauck: I hardly think I could say that. They include two different methods of charging off depreciation. Prior to 1908 depreciation was cared for by direct charges to operating expenses without any accumulation of this reserve. Subsequent to 1908, it was cared for by depreciation charges to operating expense, which increased the ratio, and a reserve was accumulated as a credit against that.

Mr. Sheean: Prior to 1907, if they had a five-year period that was a bad period and did not actually replace very much during that time, there would not be very much in the operating account because of depreciation, would there?

Mr. Lauck: No.

Mr. Sheean: It is a fact that you have selected a very low five-year period as the basis to start with, and the second five-year period is a very high period.

Mr. Lauck: I had not thought of that at all. The period 1909 to 1913--1909 was a year of depression. Also a part of 1910; 1911 was an exceptional year of prosperity, as I recall. I made the five-year comparison just to bring it up to 1909-1913. My idea was with this period, which we followed all along, to carry the same comparison on the same period, and also because the previous arbitration was held in 1910.

Mr. Sheean: Now, Mr. Lauck, is it not a fact that if you had started with the 1910 period, which the carriers did in the Eastern Rate case, and compared 1909 down to date, that on the same comparison that you have made it would be shown that from 1910 to 1913 the money that went in during that period received no return?

Mr. Lauck: I don't know. I haven't worked that out.

Mr. Sheean: Well, I assume that in the preparation of this five-year period you did make a study of the five-year comparison referred to in the last five per cent—not the last five per cent, the five per cent case decided in July, 1914.

Mr. Lauck: In the Eastern—

Mr. Sheean: In the Eastern case.

Mr. Lauck: Yes, sir, I know something about that case.

Mr. Sheean: Well, don't they in that decision point out the fact that if you select the very five year period you have selected here that deductions—or any comparison, may lead to a confused and inaccurate conclusion?

Mr. Lauck: I do not recall the opinion. I do not doubt but what they did. I mean I have not read--you mean the recent opinion, just the last month or two?

Mr. Sheean: No, the July, 1914, opinion.

Mr. Lauck: I do not recall that statement. I will be glad to accept it.

Mr. Sheean: Just refresh your recollection as to periods.

I refer to page 364 of the opinion: "For example, the exhibits compare the five-year average return from 1903 to 1907, inclusive, with the period from 1908 to 1912, inclusive. Other exhibits compare the ten-year average from 1903 to 1912, inclusive, with the figures for more recent years. Comparison is also made between 1913 and 1910. Counsel for the protestants in some cases have adopted other periods. It is manifest, however, that comparison of a single year with other single years, or of one five-year period with another five-year period may lead to confused and inaccurate conclusions. If we select, for example, the five-year period from 1903 to 1907, inclusive, it would include two, and in fact three of the prosperous years to which we have alluded, and if we take the five-year period from 1908 to 1912, inclusive, we have but one prosperous year, viz., the year 1910. Again, if we select the five-year period from 1909 to 1913, inclusive, it will include the two prosperous years of 1910 and 1913. In comparing the returns for 1913 with those for 1910, counsel for the railroads reached the conclusion that the carriers are receiving no returns whatever from the investment made in their property since 1910."

Mr. Lauck: Who concludes, Mr. Sheean?

Mr. Sheean: The carriers.

Mr. Lauck: The Interstate Commerce Commission?

Mr. Sheean: No. They say by comparing returns. This is the Interstate Commerce Commission's opinion. "By comparing the returns for 1913 with those for 1910 counsel for the railroads reach the conclusion that the carriers are receiving no returns whatever from the investment made in their property for 1910."

Mr. Lauck: Yes.

Mr. Sheean: It is a fact, is it not, Mr. Lauck, that if you started here with the period of 1910 as the base as shown on your Exhibit 7, you would have a net amount available—

Mr. Lauck: What page is that?

Mr. Sheean: Page 7, Mr. Lauck. Comparing from 1910 down to date, you would start at the base of a very large net return in 1910.

Mr. Lauck: Yes, sir.

Mr. Sheean: Now, the wage adjustment with both the engi-

neers and firemen last made in the west was in the year 1910, was it not?

Mr. Lauck: It was in the fiscal year. Yes, I think it was in May, was it not?

Mr. Sheean: May, as to the firemen. December, as to the engineers. So that, in fact, it would carry over into the fiscal year of 1911, as to the engineers?

Mr. Lauck: Yes, that is correct.

Mr. Sheean: And, without detail, if you started with 1910, without binding you to figures or percentages, there is no doubt that the comparison or conclusion would be a different showing in this white and black ball?

Mr. Lauck: Well, you would be comparing a prosperous year in the past with a comparatively dull year at the present, would you not, and, therefore--

Mr. Sheean: No, 1913, according to this, shows a net amount available of $430,000,000.

Mr. Lauck: Yes, but I mean as compared with relative business and trade activity, 1910 would be a much more active year than 1913.

Mr. Sheean: Yes. Well—

Mr. Lauck: And to that extent it would injure the comparison. That is what I—I had no special idea in making these periods beyond the fact to get the 1909-1913 comparison, just as I have in all previous exhibits.

Mr. Sheean: Just why did you take 1909 in the previous hearing? You started with 1890.

Mr. Lauck: I wanted to get the conditions prior to the Award, and instead of taking the actual year of the Award—now, the fiscal year in 1909 would end June 30th, 1909, wouldn't it? The year preceding the year of the Award. The Award came in May and December.

Mr. Sheean: May, 1910, would be practically at the close of the fiscal year of 1910.

Mr. Lauck: Yes, and would become—the real effect of it would become operative in the fiscal year of 1911.

Mr. Sheean: And the adjustment of the engineers came really in the fiscal year of 1911?

Mr. Lauck: I was basing it on the Firemen's Award—I don't know anything—

Mr. Sheean: That was practically a month before the close of the year 1910, was it not?

Mr. Lauck: Exactly, and that is why I took—

Mr. Sheean: You carried it back over a year, into a different fiscal year than the year in which the adjustment was made?

Mr. Lauck: I carried it into 1909, so I could get a year which would not be affected by the Award.

Mr. Park: Mr. Sheean, were not those Awards retroactive?

Mr. Sheean: No, I think not.

Mr. Phillips: I will say, in answer to Mr. Park's inquiry, the Firemen's Award was rendered, as I recall it, on June 4th and made retroactive to May 16, 1910. The Engineers' settlement, reached through mediation, was made and became effective as of December 24, 1910.

Mr. Park: So that the Award to the Firemen was effective at the close of the fiscal year 1910, practically.

Mr. Lauck: Yes.

Mr. Sheean: And the Engineers' adjustment was made about the middle of the fiscal year 1911?

Mr. Lauck: Yes, that is correct as far as I know. I don't know anything about that.

Mr. Sheean: I am accepting Mr. Phillips' statement, which is undoubtedly correct. Now, in your exhibits you take 1890-1813; then the next exhibit is 1900, a ten year jump.

Mr. Lauck: And thirteen years.

Mr. Sheean: Well, from 1890 the next one is 1900, excluding one ten year period?

Mr. Lauck: Yes.

Mr. Sheean: Had you taken another ten year period off the third set of exhibits, you would have brought it to 1910?

Mr. Lauck: Yes.

Mr. Sheean: You would have brought it down practically to the starting point where the engineers were adjusted—where the firemen were adjusted with. That is—

Mr. Lauck: The year preceding, yes. The fiscal year 1910 would end on June 30th.

Mr. Sheean: And the Award was made June 4th?

Mr. Lauck: December, in the Engineers.

Mr. Sheean: And in the Engineers in December. And the comparison from 1910 on in all of those exhibits would have started with a very much higher base than the one you start with in going to 1909 in all the exhibits, would it not?

Mr. Lauck: If I had selected ten years, that is true.

Mr. Sheean: And on all of the exhibits that would have been affected to the extent that there may be any difference between 1909 and 1910?

Mr. Lauck: Yes, I would have been taking as a starting point a very prosperous year in the railroad operations, but that was not considered in fixing the period.

Mr. Sheean: No, but I am simply developing the fact that the results would be entirely different.

Mr. Lauck: Yes, that would be true.

Mr. Stone: Speaking of that Western Award, Mr. Lauck, the fact that at the expiration of the year of the wage settlement a number of the roads refused to pay it any longer for the firemen, and a number of the roads never did pay it for the engineers on account of sharp practice, what effect would that have on the year after 1911?

Mr. Lauck: That would not have affected them at all as far as operating cost.

Mr. Stone: That would not affect these figures at all?

Mr. Lauck: If they never paid them, no, sir.

There is another point I have not mentioned. The point Mr. Sheean did develop as to returns on property investment. We have not any acceptable figures as to real property investments of the railroads. In accepting this figure, which is generally considered to be a very unsatisfactory one, and which is so unsatisfactory that Congress has called for physical valuation of the railroads, every advantage is given to the railroads. It is a matter of record, and known to be an actual fact, that the property investment account has been automatically increased whenever securities were issued. For instance, take the case of the reorganization of the railroads, the railroads will go in with the property investment, say $50,000,000. There will be no change in mileage, but they will increase the security issues $25,000,000, and automatically increase the property investment $25,000,000, to make it agree with the securities. On the other hand, it is a matter of record that railroads selling

their securities at a discount, say at 70 per cent of par, have charged the 30 per cent discount to property investment. So, whatever may be the facts as to periods, it seems to me, or selection of years, or return on the property investment, every factor is against this comparison from the standpoint of the men, because the figures as to property investment have been inflated for different reasons, and it is one which does not show the real investment of the road at all, simply a duplication of the capitalization of the road.

Mr. Sheean: Well, Mr. Lauck, it is a fact, is it not, as stated by the Interstate Commerce Commission, that the accounting rules made effective by the Commission on July 1, 1907, require all entries in the property accounts of railways to be stated in terms of cash, and that all of these reports as to additional investments since that date go to the Interstate Commerce Commission?

Mr. Lauck: Oh, yes; but prior to 1907 they took the property investments as the railroads reported them, and since that time have just applied these rules to that.

Mr. Sheean: Yes; but your returns here and the amount that you show here on this chart are simply additional investments made since the revised rules of the Interstate Commerce Commission? The additional increased investments as shown on this chart are the investments made since that date.

Mr. Lauck: Oh, yes; that is what I show. Yes, sir.

Mr. Sheean: So, as to this amount of one billion dollars—

Mr. Lauck: The amount of increased investment ought to be correct, if the rules of the Interstate Commerce Commission are followed, which I assume, of course, they would be, except in certain cases, for the increased investment; except, of course, where I have omitted from the increased property investment the appropriations from income for additional property. You have noted that point, I suppose, that I deduct from the total increase in investment, the appropriations which have been made from the railroads' income for additions and betterments or for new lines and extensions.

Mr. Sheean: Yes, and you have also deducted, if I follow this first exclusion, whatever reserve for depreciation has been made?

Mr. Lauck: In the comparison, yes, sir.

Mr. Sheean: In the comparison?

Mr. Lauck: Yes, sir.

Mr. Sheean: Well, as to this $1,141,000,000, shown on page 6, that is simply the additional investment made since the revised rules were adopted?

Mr. Lauck: Exactly, yes; and my criticism would not apply to that, except in specific cases which might be brought up. But the previous figure, which does not obtain here, is an improper and unsatisfactory figure, and generally so considered.

Mr. Sheean: Those improper and unsatisfactory figures are not made use of at all in any deductions which you make here?

Mr. Lauck: Not if we assume the accounting rules have been followed, no.

Mr. Stone: If we did, they would be subject to the same criticism, or perhaps more than the ones we are using now, would they not?

Mr. Lauck: I did not get that question exactly.

Mr. Stone: I say, if we did, they would be subject to the same criticism, or perhaps more than the ones we are using now, would they not, being unsatisfactory?

Mr. Lauck: Oh, yes. I might mention in that connection, Mr. Sheean, that there has been considerable dissatisfaction with the manipulation of the property investment account since 1907. That is, in 1910, the Interstate Commerce Commission permitted the railroads to revise their balance sheet, as you will probably recall, inserting B-48, I think it is, the sub-section which enabled them to pick up appropriations for property and carry it as appropriations in past years.

The claim has been made that there has been considerable inflation of the property investment account; it was made in the Eastern Rate Case; due to the practice of going back prior to 1907 and picking up appropriations that had been made for property, and putting them into the present property investment account, and thus inflating, since 1910, the property investment as compared with previous years, and making it incomparable with previous years. For instance, if this practice has been followed, the property investment since 1910 would show additions to property made prior to 1907, from income or operating expenses; and then, in working a rate of return on 1913 as compared with 1909,

it would show a smaller degree of return than if you had the real additions only during the period.

Mr. Sheean: Well, Mr. Lauck, the Commission, in connection with all of the accounting practices of carriers, have reached the conclusion, have they not, that the depreciation charges of the carriers, taken collectively, have been too low?

Mr. Lauck: You mean since 1907?

Mr. Sheean: Since 1907.

Mr. Lauck: I do not know of any official statement. I think they should reach that conclusion, yes, sir.

Mr. Sheean: Well, they did reach that conclusion in the Rate Case, when the assault was made by protestants, that the depreciation charges had been unduly exaggerated; the Commission specifically found that the converse was true, and that the depreciation charges were too low, did they not?

Mr. Lauck: I do not know. I have no doubt they did, but I do not know. Have you a statement to that effect, Mr. Sheean?

Mr. Sheean: I am quite sure it is in the opinion somewhere.

Mr. Lauck: I do not doubt that that is true, of course, because the depreciation on equipment, which is the only depreciation charge required by the Commission, has not been adequate.

Mr. Stone: Can you call to mind any example, Mr. Lauck, that would verify the statement you made, that they went back and picked up these old valuations?

Mr. Lauck: I have not in my mind for western roads specifically, no, sir, that I could detail at the present time. In this exhibit I have attempted to eliminate those additions by eliminating such additions prior to 1907 from the property investment.

Mr. Stone: But, is it not a fact, that at the time Senator LaFollette introduced his bill for the valuation of these railroads, that it was bitterly opposed by the railroads, and fought to a finish, almost, in the Senate; they did not want the bill.

Mr. Lauck: I should think so; that is my recollection of it.

Mr. Sheean: This was the part I referred to, Mr. Lauck: "One factor in this increase in the equipment expense is that, since 1907, when our revised accounting rules became effective, the carriers have more generally charged depreciation of their equipment. In another proceeding we have undertaken to study

the accounting practices of carriers in regard to depreciation of equipment, but it is proper here to say that, in our judgment, the equipment depreciation charges of the carriers before us, taken collectively, have been too low." And with that you concur?

Mr. Lauck: I think that is true, yes, sir. Of course, the maintenance charges, on the other hand, have been claimed to have been exceptionally high. I do not know whether there is any need of going into that.

Mr. Sheean: Well, the Commission also ruled upon that, did they not?

Mr. Lauck: I don't know; I have not followed the Commission's rulings at all.

Mr. Sheean: Well, you do know that the point was made that that was too high, by the protestants against any change in rates.

Mr. Lauck: Yes, the claim was made that the railroads were concealing revenues by inflating their maintenance accounts. I think that was the contention.

Mr. Sheean: Well, I will not take the time to hunt it up. I wish you would supply the dollars and cents that you have excluded in those two parentheses on page 5, excluding reserve for depreciation on the period June 30, 1913, and excluding reserve for depreciation on June 30, 1908.

Mr. Lauck: You mean, you want those for the Board or for yourself, Mr. Sheean? Do you want me to read them here?

Mr. Sheean: I thought you said you could get them.

Mr. Lauck: I can get them. I will have to send for them.

Mr. Sheean: At your leisure, yes.

Mr. Lauck: I have not them here in the city. I will have to send to Washington and get them; and I can do that very easily.

Mr. Sheean: Possibly you could have them here by Monday?

Mr. Lauck: Yes, I will try to, but Saturday is a short day there, and it would be hard to transcribe them from the records of the Interstate Commerce Commission; but I will get them as soon as I can.

Mr. Sheean: Well, furnish them sometime, so that they

may be considered a part of your examination, that you furnish those figures.

Mr. Lauck: All right, I will be glad to do that.

I believe that covers the explanation of the statistical basis, unless there are other questions that you may wish to ask.

I would ask attention, then, to page 9 of the exhibit.

Mr. Byram: Are you going to leave that chart? I wanted to ask a question before you concluded, please.

Mr. Lauck: Yes.

Mr. Byram: These forty-three carriers that you have charted there include, I presume, some railroads that did not contribute to that fund.

Mr. Lauck: Some of them show a lack of revenue gains, yes, sir.

Mr. Byram: As I understand it, and I presume you do, any increase in pay of the engineers would necessarily have to apply to every road in that group of forty-three?

Mr. Lauck: Yes.

Mr. Byram: Then, how would you justify the payment of increased wages to engineers by those roads which did not have anything to contribute?

Mr. Lauck: In general, in two ways. First, that the greater majority of these roads would be owned by other roads which were prosperous; that is, although we have 95 separate operating units engaged in the present proceedings, I think you will find that practically ten or practically fifteen railroads control or operate all the railroads in the west. For instance, take the Trinity & Brazos Valley, which is owned jointly by the Colorado & Southern and the Rock Island, and in the hands of receivers; it seems to me, in a case of that kind, that the Trinity & Brazos Valley should be considered as an integral part of the Colorado & Southern or the Burlington, and Great Northern, and Northern Pacific group; and on the other hand, you would have cases where the railroads were operating at a deficit, probably due to some lack of foresight in the building of the railroads, or from some mal-administration of the finances, like the Wabash.

Mr. Byram: But the managers of these railroads would be confronted with providing the means to pay increased wages to the engineers?

Mr. Lauck: Yes, sir.

Mr. Byram: And not having contributed to this surplus fund they could not draw on the contributions of other members of the group to provide the funds, could they?

Mr. Lauck: No. That is, they could not theoretically draw on this general group, but if they were part of a system, which a great many of these roads are, which is very profitable, it seems to me they should be considered as a part of that system and not a separate unit. Take, for instance, the Baltimore & Ohio Chicago terminal, which, I believe, is operated at a deficit; it seems to me that should be considered as a part of the Baltimore & Ohio system.

Mr. Byram: Do you claim that none of the 43 carriers covered by this exhibit are independent of other railroads?

Mr. Lauck: No, I would not make that general claim.

Mr. Byram: Then I am speaking of those particular ones —there are some members of that group not identified with other systems, independent railroads, and which have made no contributions to this fund which you claim to be available, but on whom the burden of producing the revenue for additional pay to enginemen would fall.

Mr. Lauck: Yes.

Mr. Byram: Now, as to those roads, what remedy would there be; should they, according to your argument, be burdened with the increased expense, if there should be any, although they have not produced any revenue or given a reason, as a part of this group, for being able to pay it?

Mr. Lauck: I think they should, for the reason that you will find, on investigation, that almost without exception—there may be some exceptions, but the explanation of that deficit is found in lack of proper financial management or through some fault of construction of the road. That is, a road may be built without due foresight and the traffic may not be developed which had been anticipated and which the promoters had thought. Under those conditions it seems to me the men should not suffer for the lack of business foresight in building the road.

Mr. Byram: You do not think it would be possible for a railroad to be well planned and honestly administered and still fail to produce its proper share of this fund?

Mr. Lauck: It does not seem possible to me; no, sir. There

may be cases of that kind, but it does not seem to me to be possible.

Mr. Nagel: Whatever the history may have been, you are dealing with a condition. If a road is not able to pay, that is a fact with which you have to deal at the present time?

Mr. Lauck: Yes.

Mr. Nagel: No matter what the causes may have been?

Mr. Lauck: Yes.

Mr. Nagel: Isn't it safer, then, to come back to the old rule that these men are entitled to be paid and their work ought to be fairly compensated for, regardless of conditions?

Mr. Lauck: Exactly, yes. I am not attempting to prove the ability of the roads to pay.

Mr. Stone: Is it not a fact that that is the very object of this request of ours as a standard request? Taking the earnings of some of these roads we would be safe in asking a 100 per cent increase, while perhaps others could not stand so much?

Mr. Lauck: I think so.

Mr. Stone: In hurriedly checking over this list of 43 roads, outside of about two or three, I do not see anything but what is owned by big business somewhere. In going back to this question of these roads that do not pay and these feeder lines, is it not a fact that many of them are owned and controlled by larger companies and operated even at a loss or simply held for strategic position to keep out competitors, and that sort of thing?

Mr. Lauck: That may be possible, yes. I do not know of any specific cases held for just that one reason. I know of cases where such roads are held.

Mr. Stone: And operated year after year at a loss?

Mr. Lauck: Yes.

Mr. Stone: Yet they must be a good part of that system or they would not be held to so tenaciously and other roads not allowed to come in over that track?

Mr. Lauck: There may be cases of that. There are subsidiaries of prosperous roads that are operated at a loss.

Mr. Stone: It is, perhaps, also true that some particular division of a road may be operated at a loss?

Mr. Lauck: Yes.

Mr. Stone: And the rest of the road show a good earning capacity?

Mr. Lauck: Yes.

Mr. Stone: But in considering it, you take it all, as a whole?

Mr. Lauck: Yes. I think you should consider these systems just as if you were operating a plant and getting a small margin of profit or no margin of profit on certain units of output, and large profits on others, but the total would show a distinct profit.

I will now refer to Section 2, which is the totals for the ten representative railroads we have been considering through the discussion, the Atchison, the North Western, the Burlington, the Milwaukee, the Great Northern, the Illinois Central, the Northern Pacific, the Oregon Short Line, the Southern Pacific and the Union Pacific.

Mr. Stone: It is safe to say that those ten companies control a majority of the mileage in the Western territory, is it not?

Mr. Lauck: I think those ten companies control more than fifty per cent of the mileage, operating expenses and revenues in the Western territory, and probably fifty per cent of the traffic. I could read their subsidiaries, if you cared to have them.

Mr. Stone: Yes, I think I would like to have you do that.

Mr. Lauck: The Atchison, Topeka & Santa Fe Railway controls the California, Arizona & Santa Fe Railway, the Eastern Railway Company of New Mexico, the Grand Canyon Railway, the Gulf & Interstate Railway Company of Texas, the Gulf, Colorado & Santa Fe Railway, and, jointly with the Southern Pacific, the Northwestern Pacific Railroad, the Rio Grande & El Paso, the Southern Kansas Railway of Texas, the St. Joseph Terminal Railroad, together with other railroads, and the Texas & Gulf Railway.

The Chicago & North Western Railway controls the Chicago, St. Paul, Minneapolis & Omaha Railway, which I believe is the only subsidiary in the present proceedings.

Mr. Stone: What road is that?

Mr. Lauck: The Chicago, St. Paul, Minneapolis & Omaha

is controlled by the Chicago & North Western—it owns fifty per cent of the total outstanding stock of the Omaha road.

The Chicago, Burlington & Quincy is owned jointly by the Northern Pacific and the Great Northern Railways. It, in turn —the Burlington—owns or controls the Colorado & Southern Railway, and it, in turn, controls the Colorado Springs & Cripple Creek District Railway, the Fort Worth & Denver City Railway, and, in conjunction with the Rock Island, the Trinity & Brazos Valley Railway. I do not believe the Colorado Midland is in these proceedings.

Mr. Stone: No, not in the movement.

Mr. Lauck: The Chicago, Milwaukee & St. Paul Railway controls the Chicago, Milwaukee & Puget Sound Railway, which has been merged with the parent company, I believe, during the past year. That is, its Pacific Coast extension.

The Great Northern Railway jointly controls with the Northern Pacific, the Burlington, and also with the Northern Pacific, the Spokane, Portland & Seattle Railway, and the Oregon Trunk Railway.

The Illinois Central Railroad, through the Mississippi Valley Corporation, controls the Yazoo & Mississippi Valley Railroad.

The Northern Pacific subsidiaries are practically the same as the Great Northern.

The Southern Pacific Company owns the Southern Pacific Railroad, which is a holding corporation, owning the railroad, also the Galveston, Harrisburg & San Antonio Railway, the Houston & Shreveport, the Houston & Texas Central, the Houston East & West Texas Railway, and, in conjunction with the Atchison, the Northwestern Pacific Railroad.

The Union Pacific Railroad controls the Oregon Short Line, owns entirely the outstanding capital stock which, in turn, controls the Oregon-Washington Railroad & Navigation Company. The Union Pacific also controls the St. Joseph & Grand Island Railway. I think that is the ten roads.

Referring, then, to Exhibit 39, page 9, we have a showing for these ten representative railroads. Referring to page 12, and pursuing the same method of computation as before, we have a net amount available for distribution to capital, for increased investments during this period and available to compen-

sate labor for increased productive efficiency and for appropriations for emergency reserves, of $66,000,000. Deducting from that the interest return on additional capital investment at 4 per cent, or $27,000,000, in round numbers, the balance remaining to compensate increased labor efficiency and to be appropriated for emergency reserves, consists of $39,403,000. Referring to the chart, the circle represents the $66,000,000, and the shaded portion represents the deduction for interest returns on increased capital investment and the 59 per cent available from the $66,000,000 represents the $39,000,000 available from the result of increased operating efficiency to compensate labor, after additional capital investments have been remunerated.

Mr. Burgess: What is the little mark there?

Mr. Lauck: These marks should have been continued up to the center. They represent what the segment of the circle should be. This section represents what it would be if you granted 10 per cent increase to locomotive engineers and firemen; it would absorb this proportion of the amount involved. The next would be 15 per cent and the third would be 20 per cent.

Mr. Byram: That is as to those roads alone?

Mr. Lauck: Yes, sir.

Mr. Byram: What would have been the effect on the proportions of that chart if you had included the entire 98 railroads represented in this movement?

Mr. Lauck: If I had made a chart for them, do you mean?

Mr. Byram: Yes.

Mr. Lauck: I don't know. I included as many as I could in the 43 chart. I never have gotten beyond 43, because I did not have the time and did not know the railroads. Some of the railroads in the 43 are not in this movement.

Mr. Byram: Some of your exhibits include 98 roads?

Mr. Lauck: Yes. This exhibit required a great deal of detail work to construct, and that was all I was able to prepare.

Mr. Byram: Are not the roads that you have omitted to show, for a good reason, as you have stated—aren't those the roads that contribute less to that white area in the chart?

Mr. Lauck: No, sir; I think not. If you will refer to page 1 you will find what roads have been included. I have there the Chicago & Eastern Illinois Railroad, which is in the hands

of a receiver; the Colorado Midland, which is not in the hands of a receiver, but—

Mr. Stone: It is being starved to death.

Mr. Lauck: It probably soon will be. The Ft. Smith & Western is not in the movement. It is a small road. The St. Louis & San Francisco, which is in the hands of a receiver.

Mr. Stone: It is not in the hands of a receiver because of wages paid engineers and firemen, is it?

Mr. Lauck: No, sir. The Trinity & Brazos Valley, which I think is in the hands of a receiver. The Wabash, which is in the hands of a receiver, and the Wisconsin & Michigan, which is not in the movement, but it is a very poor road.

Mr. Park: The Wabash, Chester & Western is in the hands of a receiver?

Mr. Lauck: That is a very small road, not in the movement. There was not any effort to eliminate those; just a lack of time.

Mr. Byram: I understand. I did not know what the effect would be at all.

Mr. Lauck: The real test, I think, is by individual roads or by individual systems, if you could eliminate the inter-corporate payments in the system. If there are no other questions, I will pass on.

Mr. Sheean: I wish you would supply that same information as to this group of ten carriers—how much you have excluded for depreciation.

Mr. Lauck: I will give it to you for each section of the exhibit.

Mr. Sheean: All right.

Mr. Lauck: It may take a few days, but I will do that.

Mr. Sheean: That is all right.

Mr. Lauck: I next ask attention then to page 15.

Mr. Stone: The amount that has been deducted that Mr. Sheean is asking for will not affect the general tendency to any marked extent, will it?

Mr. Lauck: I don't think so; no, sir. Of course, I believe it was perfectly proper to deduct that amount also, and it had been provided for, but that is matter of technical accounting.

The next road which I have considered is the Atchison, Topeka & Santa Fe, a diagram for which appears on page 15,

and the supporting data on subsequent pages. In the case of the Atchison, on page 18, which is the basic table for the diagram on page 15, you will find that after all increased operating costs had been paid and all deductions had been made from the corporate income of the corporation, there was a net amount of $7,000,000 available for remunerating increased labor and other operating efficiency and for remuneration of additional capital investment. Additional capital investment amounted to $87,000,000, interest upon which, at 4 per cent, would amount to $3,500,000, leaving a balance remaining to compensate labor efficiency and to appropriate for reserves of $3,577,000. An advance of 10 per cent for the outlay to engineers and firemen of this road, based on the outlay for June 30th, 1913, would be approximately $447,000, and 15 per cent would be $670,000, as compared with the total amount available, which, however, is available for all labor, of $3,577,000.

I will next call attention, briefly to the Burlington, diagram for which appears on page 21. In the case of the Burlington Railroad, after providing for all increased operating costs and for corporation costs or financial outlays, you have a net amount available and undistributed of $3,330,000, which is represented by the circle on page 21. The increased capital investment, at 4 per cent requires an income of $1,379,000, leaving $1,950,000 to distribute to labor as a whole or to provide for emergency reserves. Compared with that a ten per cent increase in the outlays in 1913 for engineers and firemen, would be $418,000; a fifteen per cent advance would be $627,000; or would constitute, as can be seen from the diagram, correspondingly larger proportions of this amount available than in the case of other roads we have considered.

Mr. Byram: That would involve distributing, according to your plan, about half of the total amount available for labor to the enginemen?

Mr. Lauck: Yes, according to this showing.

Mr. Sheean: Do you know what proportion of the total labor payroll engineers and firemen ordinarily have?

Mr. Lauck: I don't know what it is of the total payroll—it is, of the total operating expenses about one-eighth, or twelve per cent.

Mr. Sheean: So that a like increase could not be made.

even though you made no writing off for depreciation or reserves at all, you could not make a like increase to all others who have contributed to bring about the general efficiency, without having it all black?

Mr. Lauck: Not according to this showing, no sir.

Mr. Sheean: Well, now, on that Burlington showing, I note there that, because the Burlington, in expenditures for additions and betterments has, during this period of time, spent over $18,000,000, you are not going to allow them any interest on the part that they spent which came out of earnings?

Mr. Lauck: I thought it would be better not to allow that interest, for this reason, that the productive efficiency of the road has produced that $18,000,000; that is really a dividend to the stockholders of the road in increased property values.

Mr. Sheean: Well, that is, if they had distributed it to their stockholders, and then the stockholders had put it back into the property and taken bonds for it, you would have allowed them interest on it?

Mr. Lauck: Yes, sir.

Mr. Sheean: But because they have taken a short cut and put it directly into the property out of the earnings in all these years, they are not going to have any interest on it?

Mr. Lauck: To my mind, the earnings which were produced in that way were partly to be attributable to the increased efficiency of labor, and it seemed to me that one would about offset the other.

Mr. Sheean: Are you going to distribute to the present men, then, the earnings of those who were productively efficient in past years?

Mr. Lauck: Well, I would not object to that; I think it would kind of even up things if we could do something like that. Of course, on a rational and logical basis, that would not be the right thing to do, but I am sure some of those men who are gone probably would be glad to see the men have it now.

Mr. Sheean: But on this deduction which you make, of $18,000,000, shown on page 24, if the road had simply, during these years, declared that dividend and gone through the formality of declaring the dividend, and then after the stockholders got their money, had immediately put it back into the property and taken bonds for it, you would then have allowed in this com-

putation interest on $52,734,000 instead of computing interest only on $34,000,000?

Mr. Lauck: Oh, yes, I would have done that.

Mr. Sheean: And because of the omission in going through the formality of declaring a dividend, and after declaring it, putting it back into the property and issuing bonds against it, you penalized the Burlington, or the Burlington stockholders, to the extent of interest on $18,000,000?

Mr. Lauck: Yes. I have been using the Burlington as an example of very efficient management, and one of the reasons for it, of course, is putting earnings back into the road, but under the present argument, I do not think they should be allowed an interest return on that because, to my mind, as I have already stated, it is part of the productive efficiency of the road which is being given to the stockholders, or which is going back into the road. If I should grant the 4 per cent interest on that, and the question of financial ability to pay should arise, I should surely consider these appropriations of income or additions to property values from income, of the Burlington, as part of the returns to the stockholders. That is, I would consider that a dividend in property instead of a dividend in money, as you state.

Mr. Sheean: Yes, and you are not giving them now any dividends on it, either as money or property, by this way of accounting?

Mr. Lauck: No, I am not allowing them a return on that.

Mr. Sheean: None whatever?

Mr. Lauck: No, sir.

Mr. Stone: But the Burlington did declare a dividend, however, on all its stock and bonds, did it not? It paid a dividend?

Mr. Lauck: The Burlington has paid very handsome dividends throughout its history.

Mr. Stone: And this addition has simply increased the value of the property that much, has it not?

Mr. Lauck: The Burlington, I believe, pays 8 per cent dividends. This is an addition to property values, an additional dividend, and in view of the fact that it has come from revenue, it is part of the operating efficiency, either of the railroad or of the corporation; and for that reason I did not allow it a 4 per

cent return here, although I stated in the beginning I was perfectly willing, if you wanted to compute a 4 per cent return on that also, to do it.

Mr. Sheean: In these figures here, 4 per cent on $18,000,000 does not cut much of a figure in the general results, does it, Mr. Lauck?

Mr. Stone: It would not take a very big section out of the white there, would it, even if you allowed it?

Mr. Lauck: Well, it would make quite a different showing for the Burlington in this case. It would not take such a big section, but the Burlington, as has just been pointed out, according to our method of distribution, have $1,379,000 for all labor and following that point a step further, Mr. Sheean, if the other course had been taken, which I could have taken, you see, which would have been logical and in line with my argument, it would have been to have counted these additions to property from earnings as increased returns from productive efficiency. That is, I could have added to the amount available for labor the equivalent of what has been spent from income for additions to the property. That is, according to the theoretial basis, it seems to me that labor was more entitled to that than the stockholders.

Mr. Sheean: Just say what you could have done there, again. I cannot follow you.

Mr. Lauck: The $18,000,000 was an indirect dividend to the stockholders of the Burlington, arising from the revenue gains of the Burlington, through operating efficiency and through the increased productive efficiency of operating managers and engineers and firemen, and all the factors entering into the operation of the Burlington. That was given to the stockholders, according to this method of computation.

Mr. Sheean: How, when you deduct it, do you allow the stockholders any return on it?

Mr. Lauck: I do not mean an interest return on it, but I say the Burlington appropriated $18,000,000 from its surplus income for stockholders, in addition to 8 per cent dividends.

Mr. Sheean: And because they have appropriated it, you have set it aside as a non-revenue producing fund?

Mr. Lauck: Yes, in this connection; but the point I was going to develop is, that I think, from the standpoint of right, the workmen on the Burlington, not speaking now with regard

to officials or employes, should have had that more than the stockholders should have had it. The stockholders got 8 per cent, and they have got special dividends, at times, of 20 per cent. It seems to me it was verging on ultra conservatism to allow that, or not consider it as part of the productive gains of the Burlington to compensate labor.

Mr. Sheean: I would like to have you state what you could have done to it, anything that would be more drastic than to simply deduct it from the amount that they have spent on their property. What more drastic measure could you have adopted in the statistics?

Mr. Lauck: I could have taken it all as available to compensate labor for increased productive efficiency, or for all the employes of the road for increased productive efficiency. That is the point.

Mr. Sheean: If you did that, what would you do with it other than deduct it from the total capital investment?

Mr. Lauck: I would add it to the amount available for distribution to labor.

Mr. Sheean: Yes, but you would add it to the other side of the account, would you not? You would have to, if you are going to attribute it to labor, put it in somewhere.

Mr. Lauck: I would put it in my revenue and not show up $18,000,000 in additions, but the effect would be the same.

Mr. Sheean: In this way, you have simply taken it out entirely. I would like to know what more drastic thing you could do to it than to simply eliminate it entirely, as you have done here.

Mr. Lauck: The point I was trying to develop was, that I think the English method of corporation accounting is much better than the American method. I think the English method, requiring railroads to make additions and betterments from new capital, is the correct method.

Mr. Sheean: Well, that would have given an interest return on it, if it went into the property account, would it not?

Mr. Lauck: Yes, but they would have gotten new capital and would have borrowed the money, instead of taking the money which was produced by operating efficiency of the railroad and giving it to the stockholders, it would have been distributed to all the factors of production.

Mr. Sheean: Yes, and would then have been distributed to stockholders, if earned.

Mr. Lauck: Four per cent would, but the original capital would have been distributed in terms of revenue to labor or to officials, or to other factors engaged in productions on the Burlington.

Mr. Stone: After you get all the fog cleared away from it, in addition to the 8 per cent dividend which was paid, they got a further dividend of $18,000,000?

Mr. Lauck: $18,000,000, yes, sir, growing out of the increased operating efficiency of the road, to which the engineers and firemen contributed, and in view of the fact that the men did contribute toward it, it seemed to me it would be nothing more than fair (if we allowed the stockholders to have that) to not give them the interest on it.

Mr. Sheean: Well, how are you allowing them to have it? In what form?

Mr. Lauck: They have already gotten it, in increased property value. The Burlington stock is worth about $200 I believe.

Mr. Sheean: Yes, that may be, outside, but I mean in your figures; where do you give any value to it, if you simply set it aside and say "for the purpose of my account it shall be considered as not entitled to even 4 per cent?"

Mr. Lauck: I don't give it any value, but the stockholders have got it just the same.

Mr. Stone: Why should you pay the stockholders interest on it, when you have already given them that much out of the productive efficiency of the men? Why should you tax the payroll of the men 4 per cent or 8 per cent more, because you have made them a present of $18,000,000?

Mr. Lauck: That is the point I have been trying to explain, that you use the productive efficiency of the railroad to produce a special dividend of $18,000,000, and then tax their employes further to pay dividends on the productive efficiency which they have given away.

Mr. Sheean: This will develop the other point I wanted to make. Do you think that the men upon a railroad which is built and constructed, as it stands today, out of earnings, are en-

titled to a different rate of wages than the railroads which have been built and constructed by means of a bond issue?

Mr. Lauck: No, but I do not think that you should hold it against the men on the railroads—I mean that if the railroads have been constructed out of earnings, that more consideration should be given to the requests of the men than if it had been constructed out of borrowed capital.

Mr. Sheean: Why?

Mr. Lauck: Because if it has been constructed out of earnings the men have contributed toward the production of those earnings, and the rights of the additional road constructed have been virtually a gift to the stockholders, to which they have contributed. I would have to hold to that, on account of the fundamental basis of my argument.

Mr. Sheean: That is, then, you would feel that a railroad, part of whose plant at the present time has been constructed out of earnings, should pay a higher rate of wage than a railroad which has been constructed by borrowed capital and bond issue?

Mr. Lauck: I am not holding particularly to that argument, but I think that would be a fair thing to hold to.

Mr. Sheean: Well, your table is constructed on that basis?

Mr. Lauck: Yes, on that basis.

Mr. Sheean: That was all I wanted to show.

Mr. Stone: Coming back to that $18,000,000 again; suppose there had been $18,000,000 of borrowed capital put in, and a bond issue of that amount, paying 8 per cent (as the Burlington pays on some of their stock, if my figures are correct) that would be $1,440,000 in interest that you would have had to pay. Instead of giving away $18,000,000 to the stockholders, you would have taken the productive efficiency of the men to pay $1,440,000, leaving $16,560,000 still available to divide among the men. Is not that correct? Is that theory correct?

Mr. Lauck: That theory is correct. I have not followed the figures all the way through.

Mr. Byram: Capital is entitled to some share in this.

Mr. Stone: Capital is getting 8 per cent on its investment on those figures, is it not?

Mr. Byram: Getting it on that $18,000,000 you speak of?

Mr. Lauck: I am not allowing it anything, no.

Mr. Sheean: Mr. Lauck, will you just look at page 24?

Mr. Lauck: Yes.

Mr. Sheean: I understood that your deduction here was that there was a balance available, on your way of figuring, without taking the $18,000,000 to compensate increased labor efficiency and to appropriate for reserve $1,950,000.

Mr. Lauck: Yes

Mr. Sheean: Mr. Stone says, on his way of figuring, you could deduct from that $1,800,000 and still have $18,000,000 left.

Mr. Stone: Mr. Stone didn't say anything of the kind.

Mr. Sheean: As I understood the question.

Mr. Lauck: I think he was using the interest on $18,000,000.

Mr. Sheean: If you paid interest on the $18,000,000, to the amount he spoke of, to the amount of $1,440,000, you would deduct that from what you now show as now available of $1,950,000. All that you show available on the Burlington—

Mr. Lauck: If I allowed 4 per cent on that, yes, sir.

Mr. Sheean: And if you allowed 8 per cent on this $18,000,000, as he suggested, you would probably cover this all up with black, wouldn't you?

Mr. Lauck: I would, yes.

Mr. Stone: But unfortunately, Mr. Lauck, he is taking the wrong way. He wants to give the $18,000,000 away and then he wants to charge interest on it besides.

Mr. Lauck: That was not the illustration.

Mr. Stone: My illustration was not that at all.

Mr. Lauck: Take the whole $18,000,000 and give it as a reward for increased productive efficiency and add it to the $1,950,000. That was his idea.

Mr. Stone: Had new capital of $18,000,000 been put into the Burlington, instead of $18,000,000 being taken from the earnings of the Burlington, instead of having this $1,950,000 available, you would have $1,950,000 plus $16,560,000 available to distribute for productive efficiency?

Mr. Lauck: Well, if new capital had been borrowed instead of the $18,000,000 being used, you would have had $18,000,000 either in accumulated revenue or in surplus, or in revenue gains, which of course would have been sufficient to pay interest returns on $200,000,000. That is, if you had borrowed the capital.

Mr. Byram: How long? You have to figure some period there.

Mr. Lauck: That is, if it kept up. I am assuming it would keep up from year to year.

Mr. Byram: You would first have to know how long it took to accumulate that $18,000,000, because you have to pay on your borrowed capital during the time it was accumulating.

Mr. Lauck: Just the static $18,000,000 would only cover a much smaller amount on a shorter period. I was wrong, unless you assume that continued.

Mr. Stone: Well, if it did not continue, they might draw on some of their reserve for one bad year, mightn't they, some that they have piled away?

Mr. Lauck: Yes, an accumulated reserve could be used for that purpose.

Mr. Byram: After all, as I understood you to say a while ago, there would not be enough in the funds available to pay increased wages to all the employes who contribute to the funds available, on this showing, you said?

Mr. Lauck: I did not explicitly state that, but—

Mr. Byram: I understood you to say on this showing that would not be enough to pay—

Mr. Lauck: That is a comparatively bad showing there as compared with other roads, and that engineers and firemen would absorb a much larger proportion than has been the case in the preceding diagrams, and a much larger proportion than their proportion of the pay roll.

Mr. Byram: I understood you to say that on this showing there would not be enough to pay the engineers 10 per cent of all the other contributing factors? It would absorb it all.

Mr. Lauck: I don't know the exact amounts, but I don't think there would be.

Mr. Stone: But in view of all these wage movements that have ever happened that you have any history of, did you ever know of an increase being handed down all through the line because some certain class of employes happened to get an increase?

Mr. Lauck: I don't know much about that. I think the tendency would be, if, managing a railroad, you paid one class

of employes an increase, you would try to decrease your labor cost in other directions.

Mr. Stone: That has been the way it has worked out so far as our own organization is concerned, but, coming back to the question of giving all employes an increase, is there anything in the history of these wage movements to indicate anything of that kind that you did show in the increase when the award was handed down?

Mr. Lauck: Not so far as I know.

Mr. Byram: But your theory is that they should?

Mr. Lauck: According as they have contributed to the increased output.

Mr. Byram: And that is somewhat a nebulous plan of distribution.

Mr. Lauck: Of course, I am not holding for an increase for all employes at the present time, or for any specific amount to any class. I am simply attempting to show that there has been a developed efficiency on the part of the engineers and firemen which has resulted in revenue for distribution to them or to some other classes.

Mr. Byram: And that productive efficiency is shown by one of your other charts to amount to 5 per cent in the last five years.

Mr. Lauck: In terms of percentages, yes, sir.

Mr. Stone: You are also trying to show by figures, of which you court the fullest investigation, there is plenty of money available for the increase we request, are you not?

Mr. Lauck: I have not gone into that, but I think that is true according to the showing.

Mr. Stone: Well, these all have a tendency that way, don't they, to show the money is available?

Mr. Lauck: I show the money has been derived as the result of productive efficiency, but do not answer your question as to where this money is.

Mr. Byram: Do you know how much the increase amounts to requested by these men?

Mr. Lauck: No, sir, I do not.

Mr. Byram: That would have some bearing on your statistics?

Mr. Lauck: The increases that I have computed, have

been based upon a percentage increase on what the railroads are now paying to these men. The 10 per cent—in case the Burlington is paying $100,000,000 a year to engineers, 10 per cent would be $10,000,000. That is the basis I have computed it on.

Mr. Sheean: You have not followed the cycle of wage movements as to whether, when engineers have been granted an increase, the conductors and brakemen and other employes have claimed that, on account of air brakes and bills of lading, etc., they should also have an increase?

Mr. Lauck: I think that is usually the case; yes, sir.

Mr. Sheean: And that the same arguments about productive efficiency in the handling of trains are made by all those engaged in the transportation department?

Mr. Lauck: I don't know what arguments they make.

Mr. Sheean: Well, have you ever gone through the statistics of the Eastern Conductors' and Trainmen's case?

Mr. Lauck: I believe they did there. I have not gone through them, but—

Mr. Sheean: As to the productive efficiency, and the great part of it that fell upon the conductors and trainmen because of the length of trains, heavy loading, responsibility for that. You do know that they claim a large part of the credit for increased productivity, do you not?

Mr. Lauck: Oh, yes, sir.

Mr. Sheean: And you do know, in a historical way, that a wage movement of one organization upon a road or upon a group of roads is generally followed by a similar movement of other employes?

Mr. Lauck: Well, I know—I have had observation the last few years. I know there is usually a following movement on the part of other employes.

Mr. Sheean: And you do know, that through a long period of time, a sort of a relationship, or a proportional relationship between different groups of employes has sort of grown up historically—

Mr. Lauck: Grown up through experience, I guess.

Mr. Sheean: As to what the relative wages of employes should be. Has been and should be. Do you know, Mr. Lauck, whether or not—

Mr. Lauck: I don't know about these differences.

Mr. Sheean: No, not what the differences are, but that the railroads have been developed along general lines of that sort.

Mr. Lauck: I don't know about that. You mean as to whether a fireman claims he ought to have 60 per cent of the engineer's wages, or the trainmen.

Mr. Sheean: No, not any argument made upon percentages, but whether the whole railroad industrial field has been developed along the line of increases being granted to one class of employes so as to keep some sort of parity between the different employes?

Mr. Lauck: Oh, I think that is true. I think that should be true of the moneys available, if the men performing the work have any justification for it.

Mr. Stone: Because it is historically so, does not say it is correct, because it happens to be historical, does it? Is it not true that these ratios have largely been in regard to—have developed according to the strength of the various railroad organizations of the employes, instead of any other plan? Do you know anything in regard to that?

Mr. Lauck: I am not really competent to speak on these questions. I should think, though, looking at it from a theoretical standpoint, that in the past the relative proportion would have been determined by the bargaining power, largely, of the labor organization.

Mr. Stone: Outside of the four organizations in train service, do you know anything about whether or not there is anything in the history of these cycles of wage movements that provides for the great army of unorganized railroad employes? Do they get the same increase that these four organizations in train service get, always? Is there anything in history about that?

Mr. Lauck: I don't think they do. Naturally, they would not, unless they could demand it and have sufficient force to get it. That would be the natural tendency if they were unorganized, that they would not have representation and would not have the possibility for the adjustment of it, just like in the present case.

Page 27. The Great Northern Railroad, and the supporting data on page 30.

The Great Northern Railway seems to make the reverse

showing from the Burlington. Referring to the table on page 30, we have, after operating costs and deductions from the gross corporate revenue have been made, a net amount available for distribution to capital because of additional investments; to labor because of increased efficiency; and to reserves for emergency purposes, $11,987,089.41, of which, after 4 per cent return to additional capital investment, excluding additions to the property from earnings have been made, a net amount available to compensate increased labor efficiency and to appropriate for reserves of $9,558,052, which constitutes 80 per cent of the increased revenue return.

According to the chart, you will find that the allowance for the return on the increased investment takes up only 20 per cent of the increased revenue gain. An increase of 10 per cent, based upon the outlay for engineers and firemen in 1913 on this road, would amount to only $324,800; an advance of 15 per cent to only $487,200; and of 20 per cent to $649,600, as is shown by the small lines in the diagram.

Mr. Sheean: The detail on page 32 would indicate, would it not, Mr. Lauck, that practically all that difference, or a very substantial part of it, was due to the changes in other than operation. Your last column on the deductions there, which includes hire of equipment and all that sort of thing, runs from in the earlier period, where there were deductions of $8,000,000 and $9,000,000 a year, getting it down in your later period as low as $370,000 a year, as against $9,000,000.

Mr. Lauck: That is where a very large gain has been made.

Mr. Sheean: So that the change on the Great Northern Railway here, is because of a change in conditions other than operations, very largely?

Mr. Lauck: Would that not be an operating condition?

Mr. Sheean: I don't know.

Mr. Lauck: That is, if they were paying a lot for equipment, higher than previous years, they must have used additional capital to purchase new equipment and reduce their equipment hire expense?

Mr. Sheean: I only speak of one item in that account. I have no idea what that account of deductions is. But the Commission does separate, does it not, actual operation from other income?

Mr. Lauck: Yes.

Mr. Sheean: And the great change here in the Great Northern is because of some conditions which the Commission, in its way of dividing accounts, holds to be outside operations.

Mr. Lauck: Yes. That is, they consider equipment hire as part of capital expense?

Mr. Sheean: Well, the first two columns on that page 32 is—or down to "Total net revenue," covers and comprises what the Commission deems as operating revenue?

Mr. Lauck: Yes, and expenses.

Mr. Sheean: The changes during that period would not be nearly so great if you ignored the income from sources other than operation, would they?

Mr. Lauck: No. The changes have been in the—as you have indicated, which may or may not have been connected with operations. We do not know just as to detail.

Mr. Sheean: Now, at page 26 also, where you show from year to year, it is manifest from the showing there as to the different years, that the period that you have taken for comparison, 1904 down to and including 1907, was a constantly diminishing and very low base—the lowest five years.

Mr. Stone: Those figures refer to the Burlington, don't they, Mr. Lauck, on page 26?

Mr. Lauck: Yes; they refer to the Burlington, but it is just the same. The question applied just as well to the Burlington. They would indicate what you say. That is, if I had taken one of those years and compared it, I might have had a better showing, or I might have had a worse, if I had taken 1910. That is why I took the five years, to get the average.

Mr. Sheean: Well, the five years you take here are the five lowest years, aren't they?

Mr. Lauck: They are, in the case of that road, except the year 1904, which was an exceptional year, you see.

Mr. Sheean: Well, you get a constantly diminishing—

Mr. Lauck: A constantly decreasing return up to 1910, but the primary object was to take a five-year period to get an average, and to avoid a comparison based on simply a one-year period for that reason.

Mr. Sheean: I don't see you extend that same table as to the Great Northern. I thought that was the Great Northern

table from year to year, not the amount available year by year, or is that done?

Mr. Lauck: On some roads it is done, and on some it is not. On the Great Northern, I have compared simply the five-year period.

Mr. Stone: Page 33, you will find it.

Mr. Lauck: Page 33.

Mr. Sheean: You take the two five-year periods, but not year by year. All right, Mr. Lauck.

Mr. Lauck: Some places it is done and some it is not done. Really, I had not thought of it in the connection you have mentioned, although it has the point you mentioned to it.

I would next ask your attention, then, if there are no further questions on the Great Northern, to the Northern Pacific Railway, on page 34, and the supporting table on page 37.

In the case of the Northern Pacific we have an increase in the net amount available to distribution to increased investment and to labor and to reserve of $4,600,000, and an expenditure of $1,967,000 for 4 per cent on increased capital investment, and a balance remaining to compensate increased labor efficiency and for emergency purposes of $2,663,000, which is represented by the diagram on page 34.

Deducting the 4 per cent allowance on additional capital investments requires 42 per cent of the revenue gain and leaves 58 per cent, or $2,663,000, available for labor and emergency purposes.

An increase of 10 per cent to engineers and firemen would amount, on the basis of the 1913 outlays, to $360,000, and of 15 per cent to $540,600.

Mr. Sheean: And that road, Mr. Lauck, at page 37, as I understand that report, shows that in actual operation, notwithstanding this $11,359,000 more that they had put in, in the last five years, there was an operating loss of $660,000?

Mr. Lauck: There is a net loss in operating revenue of $680,000, which was offset by their other returns.

Mr. Sheean: Yes. Now, you are treating this, are you not, in the effort to show what the money that has gone in, in the last five years, has actually done?

Mr. Lauck: Yes.

Mr. Sheean: And, you are treating it upon the assumption,

where you use it in connection with productive efficiency, that that money which has gone in has gone in for operating purposes, to increase the efficiency of the plant, have you not?

Mr. Lauck: I have to, on the basis of the accounts.

Mr. Sheean: Then, do you think it is proper that, in deriving your conclusions here, as to what has been done with that money, you should take into consideration the question whether their investments in the stocks or bonds of other companies happened to pay interest during particular times, or whether their outside investments were fortunate or unfortunate?

Mr. Lauck: It would be better if we could confine it strictly to the railroad as an operating unit, but it is impossible to do that, for the reason I have not the data to do that.

Mr. Sheean: Yes, I agree with you on that, Mr. Lauck, that it is probably impossible to do so; but whether there is not an inconsistency in your two deductions; that is, whether it is not necessary to treat only the operating accounts in view of the fact that I understand your chart to be for the purpose of showing what this additional money, which went in in the five years, has produced in the way of efficiency?

Mr. Lauck: Well, the chart shows the corporation, the railroad as a financial corporation.

Mr. Sheean: Yes, but—

Mr. Lauck: Due to the inability to separate the distribution of the returns. If we were going to consider the railroad simply as a branch of the transportation industry, and confine our distribution or our argument to the revenue gains there, we would have to fall back on the revenue train mile or the revenue ton mile.

Mr. Sheean: Well, Mr. Lauck, as a fundamental on the chart, you are endeavoring to show that the money that has gone in during the past five years, together with efficiency of labor and supervision, and so forth, has made available a large sum of money?

Mr. Lauck: Yes.

Mr. Sheean: Now, is it not a fundamental underlying assumption of that, that the money that has gone in during this period, plus the efficiency, has produced these results?

Mr. Lauck: Yes, I think so, because—

Mr. Sheean: Well, then—

Mr. Lauck: Because, just to make a word of explanation, it is based on the preceding five years increase over the present five years, and therefore it is—

Mr. Sheean: Therefore, treating it that way, and showing that the combination of labor and managerial ability and labor contributions, have combined to bring about that increase, you are assuming that that is done in railroad operation, are you not, and not in stock speculation or oil lands, or anything else?

Mr. Lauck: Primarily, it should be that way.

Mr. Sheean: Now, then, on the showing of the Northern Pacific, this one at page 37, if you take the actual operations, in the way the Interstate Commerce Commission divides the accounts between actual operation and income from other sources, the showing as to that particular railroad is that, although it has put in over $11,000,000 into betterments and improvements during that time, there has been an operating loss of $680,000?

Mr. Lauck: There has been a decline in net returns of that amount.

Mr. Sheean: There has been no return to that company, through operations, on that $11,000,000; and in addition to that, the property as a whole has produced $680,000 less, notwithstanding the increased efficiency and increased money and increased contribution of everything?

Mr. Lauck: I think that is true, if you consider it simply on a rail basis. Of course, if you make a comparison on a rail basis in that way, my argument would be that you would have to go back to the train load and the train mile, just as we did yesterday, so far as the men are concerned. That is, I do not know why that revenue has fallen off. It may be due to some of the factors that you mentioned yesterday in connection with the Rock Island, or from some other cause. It may not be a decline in operating efficiency; it may be some increased expenses placed on the railroad.

Mr. Sheean: Well, Mr. Lauck, as I understand you, these figures and these amounts that you show here are simply the amounts that, under the supervision of the Interstate Commerce Commission, and in accordance with its accounts, have gone into additions and betterments and improvements?

Mr. Lauck: Yes, but the expenses I mentioned would be included in operating expenses; that is, like the maintenance

charges or the expenses of that character, that would be an operating expense. Anyhow, I do not know what it might be, but I know the operating efficiency of the Northern Pacific has increased, whether or not it has yielded a revenue gain from rail alone. It would not seem to indicate it by the figures here, in terms of dollars and cents of return in net revenues to the railroad.

Mr. Sheean: Well, now, Mr. Lauck, with the charts prepared in the effort to show what has been the result of the contribution of additional capital for additions and betterments, and the contribution of labor and every one else, in greater efficiency; and assuming that this money has gone into the actual operations, which, I think, is an underlying assumption of this sketch, is it not?

Mr. Lauck: Well, it must be an underlying assumption which, like the property investment, is not true; that is, it may be put into securities; some railroads carry securities owned as property investment, like the Atchison.

Mr. Sheean: Yes, but, being an underlying assumption on the chart as you have prepared it here, why is not the fair way of making the comparison, to exclude both sides of this speculative account of other income, and consider only the income from operation during the one period as compared with the other?

Mr. Lauck: Well, it would be impossible to do that, I think.

Mr. Sheean: Oh, no, not impossible, I think.

Mr. Lauck: I beg pardon?

Mr. Sheean: It would not be impossible.

Mr. Lauck: It would be impossible from the standpoint of the revenue gains, because you would not know the disposition of your property investment. As I say, it is a great disadvantage to make a comparison on a corporation standpoint, but additional property investment might be investment in additional securities.

Mr. Sheean: Yes, but is it not true, Mr. Lauck, that on this page 37, the one we are talking about, the Interstate Commerce Commission itself first determines the net operating income?

Mr. Lauck: Yes.

Mr. Sheean: And the net operating income, under the way the accounts are kept would be shown by the first three items on each of these tables?

Mr. Lauck: Yes.

Mr. Sheean: Then the item of taxes is deducted, under the accounting by the Commission, from the net operating income?

Mr. Lauck: Yes.

Mr. Sheean: So that, before the addition of this other income here, you have, in each case, what the Interstate Commerce Commission classifies as the operating income of these railroads, have you not?

Mr. Lauck: Exactly.

Mr. Sheean: Then you could compare what the operating income was from year to year, or through this five-year period?

Mr. Lauck: You could compare that, but we could not know anything about how the income which had arisen from operations or the capital investments in previous years had been used. For instance, suppose in the case of earnings, that the increased earnings had been appropriated to purchase this other property, or that there had been investments in other property from capital; as I say, for that reason, it is impossible. The property investment is bad enough as it is, but it sort of compensates, by taking the corporation as an entity, to do this. I think it is the only way you could work out the returns from a financial standpoint, by considering the corporation.

Mr. Sheean: My point, and the only point I was trying to ascertain, was whether or not you did not here treat all the money that went in as going into operations, in your charts, and I think you said you did; where you endeavor to ascertain what has been produced through efficiency and capital combined, that you have assumed in these charts that it has gone into operation. I was wondering whether it was not more nearly comparable, then, to have the results compare with what the operating results have been, to put them both on the same basis.

Mr. Lauck: Well, if you would compare on simply operating results, you would have to compare your revenue train load gain with your revenue gain and costs on that train load, I think, because here there has been so much income developed from investments, which have arisen either from the original capital investment of the railroad in the right of way or securities owned or issued, and in arriving at any distribution of the entire income, you surely would have to take that into consideration.

Mr. Sheean: But, I thought that you were endeavoring

here, as best you could, to separate the part which had gone in in the last five years and what had been accomplished by that money, plus labor, to produce it in the past—

Mr. Lauck: I was endeavoring to separate the increased capital investment, but not to say that it went into the road bed entirely; I do not know whether it did or not; not to say entirely to that; but aside from that, I am considering the railroad company now as a corporation, an operating unit in all its aspects, and am not confining the comparison to the rail operations themselves alone.

Mr. Sheean: If it were a fact that all of this $11,000,000 here invested on the Northern Pacific has been invested in the stocks of the Reading Railroad Company, for instance, and they had gotten large returns upon that, do you think it would be fair to say that the efficient operation of the management or the contributions of the engineers and firemen had anything to do with that purely speculative venture? All I am getting at is whether or not there is not, underlying these charts, the assumption that it has gone into operation, and if there be that assumption underlying those charts, why you should not fairly compare it with the operating income?

Mr. Lauck: I think that the investment since 1908 is not the primary factor in that respect; it is the investment or holdings in other properties other than actual rail, prior to 1908, that is producing this revenue.

Mr. Sheean: Then, if it is, in what way do you figure that the engineers and firemen working since 1908 have anything to do with the increased rate of earnings on stocks that were owned prior to 1908?

Mr. Lauck: Well, I do not figure any direct connection that they had in producing revenues on those stocks, but the railroad, as an operating company, if it should hold stocks or invest its money in stocks, I think the revenue gains arising therefrom should be participated in by the employes, if they see fit to use it in that way, like the Union Pacific has done in speculating in stocks and making immense returns. It should have been put in the property, but I do not think you will find very many cases of that; it is more cases where a company owns stock, like the Atchison, or carries part of its property investment in stocks; it is the result of a consolidation of other operat-

ing units which enter into the Atchison or any other railroad, like the Missouri Pacific, as part of the consolidated operating unit.

Mr. Sheean: That is the point exactly. The operating results of every one of those roads are shown in their operating accounts, are they not, their operating income?

Mr. Lauck: Yes, their actual rail operations.

Mr. Sheean: And in order to account for their actual rail operations, that is accounted for by the railroad which operates?

Mr. Lauck: Yes.

Mr. Sheean: Now, if the earnings of that company be paid in the way of dividends to another company which owns its stock, do you think it is right that you should count that same money a second time in the corporate income of the second stock owning company, or have you not already counted it once, when you have figured as one operating system the operating income of these railroads?

Mr. Lauck: I think that your criticism there is good.

Mr. Sheean: Now, you have—

Mr. Lauck: But I do not think that the principal source of income in the case of these railroads, or a great many railroads, has come from that source.

Mr. Sheean: Perhaps not. I do not pretend to know, Mr. Lauck.

Mr. Lauck: I do not, either.

Mr. Sheean: But, you said a while ago that, in the end it all boiled down, through intercorporate relationship, to practically ten railroads?

Mr. Lauck: Yes.

Mr. Sheean: Now, when you are treating the operating accounts of the different railroads you do find the results of operations in those several accounts, do you not, of the operating companies; they are all reported as operating net income?

Mr. Lauck: Most of them are reported as separate operating units, yes, sir.

Mr. Sheean: And you get the operating income in that company. When you count it in the operating income of that company, you have counted all the money that is made from actual operation, have you not?

Mr. Lauck: Yes.

Mr. Sheean: And is not that the very reason, or one of the reasons, why the Interstate Commerce Commission separate the operating income and require that to be reported separately, so that there will not be a confusion or pyramiding?

Mr. Lauck: Yes, that is one reason; and, of course, the other reason is to find out about the corporation as an operating unit. Of course, where there would be any duplication of payments of that kind, it would be in case of only part duplication. For instance, it is not necessary for a railroad to control all the stock; if it should receive stock dividends, as a rule, it is only about 50 per cent, and the bond issues would be paid by the operating subsidiary itself.

Mr. Sheean: In the case that you spoke of here, when you analyzed the Omaha road, you spoke of that; you analyzed their operating income and you report here in their net operating income a certain amount of money. Then you said that 50 per cent of the stock of that company was owned by the Chicago & North Western. When you come to analyze the report of the Chicago & North Western, you would carry over into this other income of the Chicago & North Western, fifty per cent of all the dividends which the Omaha Road declared, would you not?

Mr. Lauck: Yes.

Mr. Sheean: So that that money earned on the Omaha would be counted here under this item of other income?

Mr. Lauck: Yes. I think to that extent your criticism is good.

Mr. Sheean: Now, Mr. Lauck, all that I meant to ascertain was not whether or not we might differ as to the propriety of it, but whether or not it is not possible on each of these tables here to take down to the fourth line of each one of them and compare what the actual operating income of each railroad is, by simply ending your tables after the deduction for taxes is made, and comparing the results from operation with the results of previous years. You said it was impossible. It is not impossible from an accounting or statistical standpoint, is it?

Mr. Lauck: No, but I think it is from the standpoint of productive efficiency, because you would be getting it in terms of revenue, and really it would not be a correct exemplification of the work and output. That is, if your ton mile rate declines, you might have a lower net return in revenue which would also

apply here and affect the result. That same result may be affected here, it might be, by the Minnesota Rate case, or something of that kind, as to the earnings of the Northern Pacific.

Mr. Sheean: The railroad will have to be operated, will it not, in the best way that it can, in connection with the law of the land, whether it be the Minnesota Rate case or any other one?

Mr. Lauck: You understand, I am not putting this forth as an indication of financial ability, but simply as an indication of what revenue gains have come from the operation of the railroad corporation. That is, I am not saying that this is an indication of the real financial ability of this road to pay $2,000,000, but as the result of the operating efficiency, strictly confined to rail operations and to the management of the corporation, and its other investments in outside holdings, that $2,000,000, after satisfying capital requirements, is available for labor and other emergency purposes.

Mr. Sheean: That is, we are no worse off than we were in the preceding five years?

Mr. Lauck: I am not speaking of relative financial ability.

Mr. Sheean: No.

Mr. Stone: This charge to additions and betterments can be made to cover almost anything, can it not? It is quite elastic?

Mr. Lauck: It should be.

Mr. Stone: I know what it should cover, but does it always just cover that?

Mr. Sheean: Speaking from your own knowledge?

Mr. Lauck: I don't know.

Mr. Stone: Coming back to this question of these big earnings upon these railroads, if these engineers and firemen did not work at all, would these railroads still continue to produce these magnificent results?

Mr. Lauck: Of course not. It is primarily indispensable to the movement of the traffic.

Mr. Stone: Is it primarily, or is it actually the fact that they have to have them?

Mr. Lauck: Just as much as capital or any factor entering into conducting transportation.

Referring then to the Oregon Short Line Railroad—I do not want to be taking up too much time—shall I go ahead?

Mr. Stone: Yes, go ahead.

Mr. Lauck: The Oregon Short Line Railroad, the diagram for which is on page 41 and the supporting data on page 44. Referring to the table on page 44, we have a net amount available to compensate increased labor efficiency and capital of $2,019,000, and allowing, for a return of 4 per cent $1,180,000, we have a balance remaining of $838,000 for compensation of increased labor efficiency, for the creation of special reserves, etc., which is shown in the diagram on page 41. An advance of 10 per cent to engineers and firemen on this railroad would amount to about $95,000, on the basis of existing wage payments; 15 per cent, to $142,500, as indicated by the short lines in the circumference of the circle on page 41.

If there are no questions I will pass on to the Southern Pacific Railway, on page 48, with supporting data on page 51.

Upon referring to page 51, you will find in the case of this company, that there is $11,000,000 available for distribution to capital, additional investment, and labor for increased efficiency. In the last period, as compared with the five years preceding 1908, which is represented by the circle on page 48, the allowance for return on additional capital investment during this period requires only $697,000, or 6 per cent of this additional return, leaving a balance of $10,000,000 for emergency purposes and for the additional compensation of labor.

Mr. Sheean: I do not quite get that Southern Pacific—the investment in road and equipment June 30, 1908, was only $8,000,000—page 50—$8,676,000.

Mr. Lauck: This is the Southern Pacific Company.

Mr. Sheean: The Southern Pacific Company—just what have you treated here?

Mr. Lauck: The Southern Pacific Company is the corporation which owns the Southern Pacific Railroad and a number of other smaller operating units of the Southern Pacific Lines, and, as I understand it, is a holding corporation and is the ultimate corporate unit in the Southern Pacific operations.

Mr. Sheean: Well, on that property investment of $8,000,000, as shown there on page 50, you show a net revenue from operations of over $12,000,000, is it, on page 51—no, over $27,000,000.

Mr. Lauck: The property investment is low there, I think

because the holdings of this corporation would be principally the holdings of the stocks of the subsidiaries.

Mr. Sheean: Well, is this an operating company, or isn't it?

Mr. Lauck: Only partly, I think. That is my understanding of it. It is the holding company of all operating companies.

The Chairman: We will take a recess until 2:30 o'clock.

(Whereupon at 12:30 o'clock P. M. a recess was taken until 2:30 o'clock P. M.)

After Recess.

W. JETT LAUCK was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Stone: I think when we adjourned, Mr. Lauck, we had just reached an important point in the career of the Southern Pacific Company, and a seeming discrepancy in your figures. I think it might be well to give them the history of the Southern Pacific. Not all of the history—you can't do that in the ordinary lifetime, but just a short sketch of it.

Mr. Lauck: Mr. Sheean, I believe, had raised he question about the small cost of the road and equipment of the Southern Pacific. That is evidently due to the fact that the Southern Pacific was a holding company, exchanging its stocks and bonds for the stocks and bonds—its stocks for the stocks of a great many of its subsidiaries, and operating a comparatively small amount of physical property itself; and also leases a considerable number—or a number of roads; and therefore does not have much of a property account in the physical sense of the word.

In June, 1913, the end of that fiscal year, the Southern Pacific had a capital stock outstanding of $272,000,000, and it controlled transportation companies having a total outstanding capitalization of $464,000,000, that is, active operating companies. And switching and terminal companies with a capitalization of $2,000,000.

In addition, too, it held the stock also of inactive corporations to the extent of $74,000,000; or a grand total of capitalization that was held by this holding company, of $541,000,000.

The original Southern Pacific Company was one of the earliest holding companies, I think, in the country, and was

organized under the laws of Kentucky, which gave it very extensive powers to hold the securities of other corporations, and to acquire and lease and operate railroads and other properties. And it is one of the pioneer holding companies, or so called trusts, that we have in the country.

I think, in 1890, the State of Texas cancelled all its railroad leases, and forced the Southern Pacific, which had been operating all of these lines under a lease of different terms, some of which were to guarantee the operating expenses, interest charge and six per cent on the capital, or whatever it may have been—it varied from road to road—forced the Southern Pacific to cancel all these leases, and then it interchanged its stock with the stock of some of its subsidiaries, or took the stock of some of its subsidiaries and issued its own stock against them in a collateral trust form. That is, the figures as to total capitalization or to cost of road and equipment, is the report which it makes to the Interstate Commerce Commission, and is due to the fact, undoubtedly, I think, that it has a very small—comparatively small amount of physical property of its own.

Mr. Stone: But it does manage to get an enormous earning power from the companies that it controls?

Mr. Lauck: From the joint operation of its subsidiaries, which in the property accounts of the subsidiaries would appear in the separate operating reports of the subsidiaries. That is, if you were computing a ratio of return upon the property investment of the Southern Pacific, you would have to add together the property investments of its subsidiaries in order to get a fair result. In this case, however, we are not computing any rate of return, but simply computing the revenue available to this corporation resulting from the combined operating efficiency of all its operating units, making an allowance for the additional capital which may have been placed into the property by the Southern Pacific during this period. Does that answer the question?

Mr. Sheean: In those subsidiaries, Mr. Lauck, the same returns are counted once, when you count the subsidiaries, in their operating accounts; the operating accounts and operating expenses of the subsidiaries show this same revenue earned by them, by their property.

Mr. Lauck: In the total, you mean?

Mr. Sheean: Yes.

Mr. Lauck: It is only counted once in the Southern Pacific Company; but if you would aggregate the Southern Pacific Company and the Southern Pacific Railroad, it would then show twice.

Mr. Sheean: Well, the operating reports of these operating companies show this as revenue earned from operation?

Mr. Lauck: Yes.

Mr. Sheean: And, that, thus earned, is not carried out against the property investment which earned it, but you carry it over into the treasury of another company, and count it there, in this table?

Mr. Lauck: Yes, that is the point I was trying to explain.

Mr. Byram: If this is a holding company, it has not any engineers, has it?

Mr. Lauck: It is representative of a large number of engineers. It has very few of its own, because it operates a very small amount of property.

Mr. Byram: The other railroads have the engineers?

Mr. Lauck: The other railroads have the engineers.

Mr. Stone: Then they reap where they do not sow, do they not?

Mr. Lauck: It is a holding security device, like the Rock Island Company is the holding company of the Rock Island Railroad, which owns the Rock Island Railway, which is the operating company.

Mr. Sheean: Then the investment of the company which employs the engineer would be very much larger than the investment shown here?

Mr. Lauck: Very much, yes, sir.

Mr. Sheean: And would run into the hundreds of millions?

Mr. Lauck: Yes, sir.

Mr. Sheean: Instead of this $6,000,000?

Mr. Lauck: Yes, sir. That was simply their small investment in physical property. They deal in stocks and bonds and interchange of securities.

Mr. Stone: But the fact does remain that they get the cream of the whole thing; regardless of whom the engineer works for, they get the cream of the results.

Mr. Lauck: Yes, sir, they get the return from whatever

source, just as in the case of the recent distribution of the Central Pacific, a special dividend of $10,000,000, or a division of the surplus to the Southern Pacific Company. If there are no further questions, I will pass on to the next railroad.

Mr. Stone: Very well.

Mr. Lauck: The next railroad company is the Union Pacific, the diagram for which appears on page 55, and the supporting data on pages 57 and 58.

Referring to the table on page 58, we have the net amount available for distribution to capital because of additional investments, and to labor for increased efficiency, and to emergency reserves, amounting to $24,000,000, in round numbers. The allowance for a fair return to capital for increased investment during this period, at 4 per cent, amounts to $1,000,000, in round numbers, leaving $22,000,000 available for the increased compensation of labor and for emergency reserves and other purposes.

That is reflected in the diagram on page 55, where it is shown that of the $24,000,000, 4 per cent of it is absorbed by interest requirements on increased capital investment, while 96 per cent of it is available for the compensation of increased labor efficiency and for reserves. On this road an advance of 10 per cent to locomotive engineers and firemen as shown on page 58, would amount to $209,000, and of 20 per cent, to $418,800, and of 25 per cent to only $523, as indicated by the slight mark on the circumference of the circle on page 55.

The next diagram covers the Canadian Pacific Railway Company, Canadian Lines. It appears on page 62, with supporting tables on pages 64 and 65. In the case of this railway company we have a net amount available for distribution of $19,000,000, in round numbers, and after a deduction of $6,898,000 for return on increased capital investment, there is remaining $13,000,000 available to compensate increased labor efficiency and to appropriate for reserves. Fifteen per cent increase to locomotive engineers and firemen would absorb $1,000,000 of this, or 20 per cent would absorb about $1,396,000, and a 25 per cent increase, as shown on page 65, would absorb $1,745,000 of the $13,000,000.

Mr. Stone: In speaking of the Canadian Pacific, you use the lines both east and west, because they make only a single report?

Mr. Lauck: Yes, they make a report through courtesy.

Mr. Stone: I understand. They are not compelled to.

Mr. Lauck: The next railway company for which data is shown is the Colorado & Southern Railway Company, on page 69, with supporting table on page 72. In the case of this railway, we have shown, after the payment of operating costs and deductions, except interest on funded debt, increased revenue available of $1,327,000. Allowance for return at 4 per cent on the increased investment would absorb $117,000 of this, leaving $1,210,000 available for the compensation of increased labor efficiency or for appropriation to reserves. An increase of 20 per cent on this railroad would amount to only $112,000, and an advance of 25 per cent to locomotive engineers and firemen, to only $140,000.

The next railroad, appearing on page 76, is not in the movement, the Duluth, Missabe & Northern.

The next road appearing in the movement is on page 83, the Fort Worth & Denver City. The showing made for the Fort Worth and Denver City is that $584,000 of increased revenue is available in the period ended 1913, compared with 1908, and as a result of increased capital investment $96,000 of this should be returned to capital, leaving $487,000 available for increased labor efficiency and for reserves. A 20 per cent increase to locomotive engineers and firemen on this road would amount to only $48,400; a 25 per cent increase to only $60,500; a 15 per cent increase to $36,300, and a 10 per cent increase to $24,200.

The next transportation company is the Kansas City Southern, which appears on page 90 of the exhibit, and the supporting table is on page 93. In the case of this railroad there is an increase of revenue available for labor and capital in 1913, as compared with 1908, of $600,000. Owing to heavy capital investments during the period, however, $451,000 of this is required to meet increased interest charges, at 4 per cent, leaving $148,869 available for increased compensation of labor or for emergency purposes. You will notice from the diagram on page 90 there is a comparatively poor showing made for this road, as compared with other roads.

Mr. Byram: Is the Kansas City Southern identified with any of the big groups of railroads?

Mr. Lauck: No, sir; it is an independent railroad.

Mr. Byram: Then, it would not be in a position to draw on the surplus of other railroads?

Mr. Lauck: No, sir. That is a case in point such as you mentioned this morning, Mr. Byram.

Mr. Byram: In that case, there would not be enough to distribute an equal increase in pay among all employes who have contributed to the production of this amount of available surplus?

Mr. Lauck: Not on a comparative basis, as compared with other roads. There is a very small margin left, according to this showing.

Mr. Stone: The Kansas City Southern would probably make a better showing if they could get their share of freight, wouldn't it—that is, if the freight rates from Chicago to the Gulf were not just as cheap as from Kansas City south?

Mr. Lauck: I don't know what the traffic conditions are.

Mr. Byram: The fact remains it would be very difficult to distribute this surplus without omitting some of the employes who contributed to the production of it?

Mr. Lauck: That is right. I am tempted to say here that if you would only give the engineers five per cent there might be something left for the other employes.

Mr. Byram: Would there be? Capital would have to have its share, and other employes, according to your theory, should have their share?

Mr. Sheean: Even five per cent would more than take it up, if they are one-eighth of the payroll—eight times five would make forty, and the twenty here more than takes it up.

Mr. Lauck: I am not defending the position that this is making a good showing. It makes a decidedly bad showing against my contention.

Mr. Byram: That is a problem that the managers of the Kansas City Southern would have to consider?

Mr. Lauck: Yes, sir.

Mr. Sheean: Even five per cent would make it all black.

Mr. Lauck: I don't know what the total labor cost would be.

Mr. Sheean: I understood you to say it was about one-eighth?

Mr. Lauck: One-eighth to engineers—you can take the total operating expense and compute it for that railroad.

Mr. Stone: You don't expect the millennium is coming that soon, do you, when all employes will share in all these wage increases?

Mr. Lauck: No, I had not anticipated that.

Mr. Byram: You have argued that it was necessary, from your standpoint.

Mr. Lauck: Where there is productive efficiency.

Mr. Byram: In order to properly distribute it.

Mr. Lauck: Where there is productive efficiency, but, of course, the ones that are peculiarly affected by the development of productive efficiency should participate first or should receive the larger share in any method of distribution. That is, if the heavier train load impinges more upon the engineers and firemen, they should have a prior claim more than the man in the machine shop who operates his lathe just the same. The idea of a general anticipation I did not intend to put forward except as a general philosophy of economic progress. That is, if there is increased return and capital is being amply rewarded and there is a large amount of revenue remaining, why, I think the other classes of employes ought to participate, just as a general thought—that idea was put out in discussing the matter with Mr. Nagel.

Mr. Stone: The Kansas City Southern has had quite a checkered career, has it not?

Mr. Lauck: There is probably some other factor explanatory of that than the operating efficiency.

Mr. Park: You spoke of an increased maintenance cost, Mr. Lauck, and that it was necessary to keep in reserve some of this money. Knowing that the Kansas City Southern, as well as other roads, are required to standardize their equipment and probably be required to put in automatic signals, steel cars, electric headlights, as well as other increases in their expenses, along the lines of extra crews or so-called full crews—the same pressure is there in this case quite frequently from employes to do these things—do you consider it good policy as a manager to keep in reserve this surplus to meet these contingencies?

Mr. Lauck: I think so, yes, sir. I think that has been the policy, has it not?

Mr. Park: Yes.

Mr. Lauck: Of course each one of these railroads now, except the ones that are in a bad financial condition, have an accumulated surplus for that purpose, which we are not considering.

Mr. Stone: You would not admit, though, would you, Mr. Lauck, that all these improvements should be taken out of the wages of the engineers and firemen, would you?

Mr. Lauck: No, I distinctly disclaimed any intention of holding to that point. In my discussion with Mr. Nagel relative to passenger trains out of St. Louis or Chicago, the idea was that increased productive efficiency should not be used to pay for these improvements, or the firemen should not be required to pay for these improvements, or any class of employes. That recourse should be had to higher charges if additional expenses were imposed on a railroad.

Mr. Park: Proper management would compel a manager to conserve his funds to meet all of these things that he knew were confronting him, not necessarily taking it out of the wages of any of the employes, but perhaps withholding it, if he felt that the demands of the public, either through legislation or otherwise, were imperative and had to be met.

Mr. Lauck: Yes, I think the point of view of the manager would be that exactly.

Louisiana & Arkansas. That is not in the movement, is it?

Mr. Stone: It is in the movement, and also in the hands of a receiver.

Mr. Sheean: Is that tied up with any road that has an available surplus to make up this black space?

Mr. Lauck: No.

Mr. Sheean: It would have the same difficulty as the Kansas City Southern?

Mr. Lauck: Yes. Of course it is evident what is the matter with this road. It should never have been built. That is probably what is wrong with the Louisiana & Arkansas.

Mr. Stone: The men who work on it are handicapped. They should live in a balloon. They change terminals with every change of the moon.

Mr. Lauck: The Louisiana & Arkansas makes a comparatively poor showing also according to this method of presenta-

tion. On page 97, there is $133,000 available to compensate capital and labor, and $2,000,000 more having been put into the property investment in this road during the past five years, $96,000, of this $133,000 was absorbed by increased interest charges, or by an allowance for that purpose; leaving only $36,000 remaining to compensate increased labor efficiency and appropriate for reserves. Of course, the outlays for engineers and firemen and other classes of employes correspond to the smallness of the general figures of the road.

An advance of 15 per cent to the engineers and firemen would amount to only $10,800, and 20 per cent to $14,400.

Mr. Stone: From the evidence on page 96, "Investment in Road and Equipment," you would think this was quite some railroad.

Mr. Lauck: Yes.

Mr. Stone: It is evident it is waterlogged or something, because I think it only has about eighteen or twenty engines, something like that.

Mr. Lauck: I think, if I remember, I have a recollection of a group of financiers attempting to put this road on its feet. They attempted an impossible thing, and put some money into the road, and now it is as bad off as it ever was before. The fundamental defect is that the road, seemingly, should never have been constructed. It was lack of economic foresight in building a road across the territory that they did, and it never could be expected in a competitive way to develop gains.

Mr. Sheean: They haven't any income from other sources than operation? Either that road or the one preceding it, as shown by this table, have they?

Mr. Lauck: No.

Mr. Sheean: No stocks that are paying dividends in their territory.

Mr. Lauck: No.

Mr. Stone: The oil land and all the other land had been gobbled up before they got into the game. They just had a plain railroad?

Mr. Lauck: Yes, they got in later, as I recall the history of the road.

The next railroad is the Soo Line, which appears on page 100, and the diagram and supporting data on page 103.

In the case of this railroad, there was $2,217,000 available for labor and capital and emergency purposes, or an increase in the revenue of that much in the latter period as compared with the former. During the period there was an increased capital investment of $25,000,000, which, at 4 per cent, would absorb $1,032,000 of the revenue gained from all sources, leaving $1,185,000 available for increased labor efficiency and for reserves.

An advance of 15 per cent on this road, as shown in the text on page 103, for locomotive engineers and firemen, based on their outlay for this class of employes in 1913, would amount, in round numbers, to $237,000; 20 per cent increase, to $316,000; 25 per cent increase, to $395,500.

The next railroad is the St. Louis & San Francisco. The remarkable thing about this railroad is that it shows a remarkable gain in revenue, while it is still in the hands of receivers. It is in contradistinction to the Louisiana & Arkansas, evidently due to the fact, I should say, that the operation of the railroad is satisfactory, but the financial management of it is the cause of its financial troubles, which I suppose is a self-evident fact.

Mr. Stone: The fact remains, does it not, that the same operating official is in charge now as was in charge before it was in the hands of a receiver, Mr. Nixon?

Mr. Lauck: I don't know.

Mr. Stone: That is true.

Mr. Lauck: Evidently the financial difficulties of the road are due to its financial administration and not to the operation of the property, however.

Mr. Sheean: That, again, shows that the ups and downs are largely in this other income, does it not, rather than in the operation?

Mr. Lauck: On page 111?

Mr. Sheean: Yes.

Mr. Lauck: It shows a distinct falling off in other income since 1908, which, I think, is due to the reckless expansion of the railroad, or the absorption of properties which were unprofitable. The Interstate Commerce Commission, in its report upon this road, states that its financial difficulties are entirely due to its financial management, and not to its operating management. Of course, the wonderful resources of this road were dissipated by a reckless policy of expansion. It makes a very

significant comparison with the Atchison, for instance. The Atchison and the Frisco both went into the hands of receivers about the same time, about 1895, if I remember correctly. The Atchison pursued a conservative policy when it was recognized, and is a remarkable example of railroad administration at the present time; while the Frisco, which had even greater earning capacity than the Atchison, entered upon a policy of reckless expansion and dissipation of resources resulting in its present condition, and it probably would have been a better property than the Atchison or have been as productive a property from an operating standpoint, if it had had the proper financial administration. Anyhow, that is decidedly marked. The point is, on page 110, that this railroad shows a gain of revenue from all sources of $4,468,000 to compensate labor and capital in 1913, as compared with 1908, $1,230,000 of which is allowed for an investment, at 4 per cent, on an increased outlay of $30,000,000, leaving $3,238,000 remaining to compensate labor for increased efficiency or for reserves or other purposes.

Mr. Sheean: Do you think, Mr. Lauck, that the Frisco was able to get any of that $30,000,000 during that last period at 4 per cent?

Mr. Lauck: Well, I do not think the Frisco would be typical of a railroad; of course, they sold their mortgage bonds at 65 cents on the dollar—

Mr. Sheean: Well, whether they would be able to get it. I do not know anything about their financing, but this shows $30,000,000 went in in the last five years, and you have given them credit here of 4 per cent. Do you think that it would be possible during that five year time for that road to have obtained that $30,000,000 at 4 per cent?

Mr. Lauck: I think the rate would have been between 4 and 5 per cent, for a railroad with good credit; possibly a little more than 4 per cent.

Mr. Sheean: Well, what about this railroad that borrowed this $30,000,000 that went into this property?

Mr. Lauck: Well, they probably paid for that about—they paid in the last seven or eight years about $32,000,000 in discounts on securities which they issued, which they charged to their property investment, and they sold some of their 3 and 4 per cent bonds at as low as 65 cents on the dollar, and I do not

think that this railroad could have gotten credit, except at enormous discounts, or high rates of return, from any banking houses, but—

Mr. Sheean: That is, if on this $30,000,000, instead of this hypothetical 4 per cent, you credited the actual interest which was paid on that $30,000,000, it would show your chart entirely black, would it not, or closely to it?

Mr. Lauck: Suppose I gave them 5 per cent, suppose this was a road that had been properly managed—

Mr. Sheean: No, I mean this road. You say they actually sold their 4 per cent bonds at about 65.

Mr. Lauck: Yes.

Mr. Sheean: It would tend to enlarge the black space very much, that is all.

Mr. Lauck: Yes.

Mr. Stone: Because the road was looted by a few financial pirates is no reason why it should be made a special rate, outside of the regular money market, is it, in these computations?

Mr. Lauck: Not at all. I should not think that would be any ground for objection to the interest return, but would rather be favorable to our side of the contention. That is, as a matter of fact, the Frisco's revenues were simply dissipated by its financial administration; the officers of the corporation made huge profits out of acquiring other lines that went into the operating units of the Frisco, and through entering into underwriting syndicates and participating in the profits. That is a matter of official record of the Interstate Commerce Commission.

But, meeting Mr. Sheean's question fairly, suppose this was a road that had had a reputable financial management, I think that since this exhibit has been prepared we ought to allow the railroads more than 4 per cent, although they are not paying but slightly more than 4 per cent on their bonded indebtedness, due to the fact that the old 5 and 7 per cent bonds have been refunded into bonds of lower denominations, which were issued years ago; but there is no doubt that capital costs are going to be higher now than they were when this exhibit was prepared. Of course, the corresponding gains may offset that, but—

Mr. Stone: Even though the interest might be higher, say it was 5 or 5½ per cent, it is also true that later returns from

the railroads might also show an increased productive efficiency?

Mr. Lauck: Yes, undoubtedly.

Mr. Stone: Which would more than over-balance the increase in the interest rate?

Mr. Lauck: Yes, or capital which is now unproductive may become productive.

Mr. Stone: So that this diagram, instead of being more black, if it was brought up to date, might show more of the white?

Mr. Lauck: Yes, it is possible, although, of course, conditions have been abnormal during the past year and you could not base any statement as to that fact on the last year's operation.

If there are no further questions, I will pass to the St. Louis Southwestern Railway on page 113, with the supporting table on page 116.

In the case of this railway, we had an increase in net revenue from all sources of $567,000 available to compensate labor and capital, and an added capital commitment during the period of $6,000,000, which, at 4 per cent, would absorb $244,000 more revenue, leaving $322,000 available for the compensation of increased labor efficiency or for reserves.

Referring to the outlay for firemen and engineers, in the text, on page 116, a 10 per cent advance would amount to $33,000 on the basis of 1913 costs; an advance of 15 per cent to $49,500; and a 25 per cent advance to $82,500.

Is the San Pedro in the movement?

Mr. Stone: Yes.

Mr. Lauck: Referring to page 119, the next showing is for the San Pedro, Los Angeles-Salt Lake Railroad. The supporting table is on page 122.

There you have an increased revenue return available for remunerating capital and labor of $392,000; a capital commitment, however, of $7,000,000 more in 1913 than in 1909, which would absorb $313,000 of this revenue available, leaving only $78,000 available for increased compensation for labor and for appropriations to emergency reserves. That and the diagram on page 119 makes a comparatively poor showing therefor, as

in the case of the Louisiana & Arkansas and the Kansas City Southern.

Mr. Stone: This is one of the Harriman Lines, is it not?

Mr. Lauck: If I remember correctly this is owned by the Union Pacific. Is it not?

Mr. Stone: That is a Harriman Line.

Mr. Lauck: Yes, I think that is correct. This is owned by the Oregon Short Line Railroad which, in turn, is owned by the Union Pacific.

If there are no questions I will pass to the next.

Mr. Sheean: I was wondering whether that operating revenue would be pyramided through each of those, on this way shown here, first as affecting this road and then as affecting the Oregon Short Line, and then, finally, in the Union Pacific, where you carry it to income from other sources.

Mr. Lauck: Yes, it would.

Mr. Sheean: It would show three times in this case. Did you include the Oregon Short Line—the same money earned by this road is shown three times.

Mr. Lauck: It would appear in the Oregon Short Line, and then, if you considered the Union Pacific as one system, it would be aggregated into the Union Pacific; that is, the operating revenue, you would consider it as one railroad system and there would be no duplication there. If there was an intercorporate payment, there would be a duplication.

The last road for which I have a table in this exhibit is on page 125, the Southern Kansas Railroad Company of Texas. I believe that is now a subsidiary of the Santa Fe, is it not, and goes by the name of the Pan Handle and Santa Fe, if I remember correctly. That shows $317,000 available for labor and capital in 1913 over 1908; $51,000 of which is absorbed by a 4 per cent allowance to the added investment of $1,275,000, leaving $266,000 available for increased compensation of labor efficiency, or for appropriation for reserves and other purposes. A 15 per cent increase to engineers and firemen upon this road would amount to only $7,800, and a 20 per cent increase would amount to $10,400, and a 25 per cent increase to $13,000, based upon the present cost to the railroad, without regard to operating rules. This concludes this exhibit.

I have only one more after this, I am glad to say.

The next exhibit is No. 40, and is entitled the "Effect of Certain Designated Wage Increases to Locomotive Engineers and Firemen upon Operating Revenues and Expenses and Accumulated Surplusses of Western Railroads."

(The document so offered and identified was received in evidence and thereupon marked "Employes' Exhibit No. 40, January 8, 1915.")

The exhibit is made up of diagrams and supporting tables. A few diagrams in the exhibit. And covers representative roads, and the latter part of the exhibit covers the individual roads. It is divided into two parts: one the effect upon operating revenues, and the other the effect upon surplus.

Referring to the diagram on page 3, with the supporting tables preceding on page 1, I have it expressed in graphic form in the chart which appears on the easel.

Adding 59 railroads together, the gross operating revenues for the year 1913—we have a total operating revenue for these railroads, considered as one system, of $1,398.1.

An increase in the payments, based on 1913 outlays to engineers and firemen, of 5 per cent, would be 3.7 million dollars.

An increase of 10 per cent would be 7.5 million dollars. An increase of 15 per cent would be 11.2 million dollars. An increase of 20 per cent would be 15 million dollars, and an increase of 25 per cent would be 18.7 million dollars.

The cubes showing the increased outlays for engineers and firemen, based upon present costs, or 1913 costs, are drawn to scale to the larger cube for gross operating revenue, and show a proportionate amount of revenue which would be absorbed.

Mr. Stone: Do I understand you to say this is gross operating revenue and net income from all sources?

Mr. Lauck: This is gross operating revenue. Not income from other sources than real operation.

Mr. Byram: It has no relation to net?

Mr. Lauck: No, just the gross return from freight and passenger traffic.

Mr. Byram: No account taken of other expenses that must be met before this can be applied?

Mr. Lauck: No. This would be like taking your return from your total trainload and comparing the cost of engineers and firemen to it on a train mile basis.

Mr. Sheean: You don't deduct any of the expenses paid now in wages?

Mr. Lauck: Not at all. The idea is to show what a relatively small increase there would be as compared with the total gross revenues, without any regard to other factors whatever. There is no significance in the financial ability to pay at all on this chart.

Mr. Sheean: This first cube, 5 per cent, if you multiplied that by twenty you would show what part of the revenues the engineers are already getting out of that chunk over there?

Mr. Lauck: Yes.

Mr. Sheean: So that multiplying that by twenty in that case and increasing the other by ten, you show what part out of the gross sum is now being taken out of the big square?

Mr. Lauck: Yes. That would be twenty times. Back there four times.

Mr. Stone: The big cube, however, would stand quite a good many more squares taken out of it?

Mr. Sheean: If we had no one but engineers to pay?

Mr. Stone: They don't want even to pay them, as far as that is concerned.

Mr. Lauck: If no further questions, I will submit the next chart. This makes the same showing for the ten representative railroads we had in all the exhibits, and shows a total of gross operating revenue from rail operations of 742.6 million dollars. 5 per cent increase on basis of the present outlay, 1.9 million dollars, 3.8 million dollars for a 10 per cent increase; 5.7 million dollars for a 15 per cent increase; 7.6 million dollars for a 20 per cent increase, and 9.4 million dollars for a 25 per cent increase. The cubes are also drawn to scale. These are for the ten roads, the Atchison, the Burlington, the three Pacific roads, the Oregon Short Line and the Illinois Central. I think this makes identically the same comparison, in terms of dollars and cents, in gross returns, as the exhibit which I had showing cost and revenue gains per revenue train mile,—it should show proportionately the same result.

If there are no questions I will pass on to the next one.

According to the accounting methods of the Interstate Commerce Commission the railroads have a so-called free surplus, which is the credit surplus in profit and loss. For 53 Western

railroads, the same 53 that we have been following, and a list of which appears on page 16, in the footnote to the exhibit,—these railroads have an accumulated surplus or so-called free surplus in profit and loss of 684.7 million dollars. Comparing the effect of increased wage payments to engineers and firemen, with this surplus, we have for a 10 per cent increase, 6.9 million dollars, or a 15 per cent increase 10.3 million dollars compared according to a relative scale with the surplus.

This next chart makes the same comparison for the ten representative roads which have a so-called free surplus of 562.3 million dollars, and a 10 per cent increase to firemen and engineers would be 3.8 million dollars and a 15 per cent increase would be 5.7 million dollars. The cubes are drawn to scale. If there are no further questions, I will submit the exhibit.

Mr. Stone: That is all of your exhibits?

Mr. Lauck: I have one more.

Mr. Stone: That is all on this exhibit?

Mr. Lauck: That is all, unless you have some questions. The other diagrams follow the same method of comparison.

Mr. Stone: Taking them up by single roads.

Mr. Lauck: By single roads, yes, sir.

The Chairman: Are those all the exhibits you have to offer, Mr. Lauck?

Mr. Lauck: I have one short one which is not related to these. It just consists of a tabulation.

Mr. Stone: We will offer now Exhibit Number 41, "Instances of Continuous Service on Western Railroads by Engineers and Firemen, in Excess of 16 Hours."

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 41, January 8, 1915.")

Mr. Lauck: This exhibit has no relation to any of the others that I have submitted, and I am simply submitting it because I supervised the tabulation of the data. It is entitled, "Instances of Continuous Service on the Western Railroads by Engineers and Firemen in Excess of 16 Hours," from July 1st, 1912, to December 31st, 1913. Each of the railroads is required to report to the Safety Division of the Interstate Commerce Commission, making a separate report as to any employes, by occupation, who are kept on continuous service for sixteen hours

or longer, and also to state the period of the service. This exhibit consists merely of a tabulation of the returns of the railroads to the Interstate Commerce Commission. That is, the Interstate Commerce Commission itself does not tabulate these returns, except in the aggregate, so it was necessary to go to the files of the Commission and get the cards that had been sent in by the railroads to make a tabulation according to engineers and firemen as was desired.

Mr. Stone: If you had not made this separation, Mr. Lauck, it would have taken all of the employes in the train service and it would have been much higher?

Mr. Lauck: Oh, yes; each employe would have increased the number and by taking each trainman or train crew there would probably have been about four or five times as many.

Mr. Stone: These are merely engineers and firemen?

Mr. Lauck: Merely engineers and firemen.

Mr. Stone: How do you explain the fact that some roads show five or six times as many violations of the law or men on duty more than sixteen hours, perhaps not violation of the law, than others—there is no explanation given to the Interstate Commerce Commission, is there?

Mr. Lauck: They are expected to show the cause of the excess hours, but I did not go into that and do not know what it is, except from general operating conditions.

Mr. Stone: I see, for example, on page 4, the Illinois Central had 8,000 violations, as compared with somewhere in the neighborhood of 2,000 for the other roads.

Mr. Park: Were they violations or simply cases in excess of sixteen hours?

Mr. Lauck: They were cases in excess of sixteen hours.

Mr. Park: Not violations?

Mr. Stone: Technically not violations, but the fact remains the man was on duty more than sixteen hours.

Mr. Lauck: Yes. I did not look into the causes or reasons or why it was, or anything of that kind; I simply tabulated the data and, knowing nothing about operating conditions, I could not state why it was or how these excesses occurred.

Mr. Stone: But the fact does remain, from those statements there are men who have actually been on duty up to twenty-five to forty hours?

Mr. Lauck: Some of them have been on duty forty hours or longer. Out of a total of 50,000 cases, referring to page 8, which I believe would be due to some accident or act of nature or something of that kind, 71 engineers and 74 firemen were on duty more than forty hours, out of a total, however, of 50,000 cases.

Mr. Burgess: These figures at the top represent the number of hours?

Mr. Lauck: They represent the number of hours, and the number appearing in each sub-head represents the relative proportion of the total of 49,000 that were in service in each period. For instance, out of 49,286 cases of both engineers and firemen, 14,180 were in service between sixteen and seventeen hours; 1,200 were in service between twenty-two and twenty-three hours; 309 were in service between thirty and thirty-five hours.

Mr. Byram: Each one of these 24,000 men, once in eighteen months, a year and a half, has been on duty more than sixteen hours?

Mr. Lauck: It averages that, yes.

Mr. Park: Did you make any comparison with previous years to see whether this was decreasing?

Mr. Lauck: No, sir, I made no study of that in any connection.

Mr. Stone: Do you think the men sleeping in these limited trains shooting across the country at night would sleep any sounder if they knew somewhere out ahead there was one of these men who had been on duty this number of hours?

Mr. Lauck: I should not think so, no, sir.

Mr. Stone: If he happened to make a mistake after he had been on duty 35 or 40 hours, once in a lifetime would be enough, if they happened to hit him?

Mr. Lauck: I should think so, yes.

Mr. Stone: It would only need one of these tired, overworked men to make the stage setting for a first class accident—it doesn't need eight or ten crews?

Mr. Lauck: Of course, one man could cause an accident.

Mr. Byram: One man could cause it if he was not on duty sixteen hours, too?

Mr. Lauck: Oh, yes. I do not pretend to know—

Mr. Park: He might be around town all day and all night

and then go out on the run and be in a physical condition which would be comparable with this?

Mr. Lauck: It would be possible.

Mr. Stone: Then if he worked sixteen hours he would be in still better shape?

Mr. Lauck: He would be in worse, I should say.

Mr. Burgess: I notice on page 4, for the Illinois Central, where there are the figures 59 and 64—they were on duty from 26 to 30 hours—am I right on that?

Mr. Lauck: 26 to 30 hours, 59 engineers and 64 firemen.

Mr. Burgess: From 26 to 30 hours?

Mr. Lauck: From 26 to 30 hours, yes, sir, during this eighteen months' period.

Mr. Burgess: I thought we had got by the 30-hour period, Mr. Park.

Mr. Park: We have accidents on the Illinois Central—floods and accidents and strikes.

Mr. Burgess: And you keep them on duty 30 hours?

Mr. Park: They are not on duty; they are laying down asleep most of the time.

Mr. Burgess: You didn't have 59 floods?

Mr. Park: We had a flood for 59 days, though.

Mr. Burgess: In that case you would have some advice in regard to the matter; you would not keep a man on duty 30 hours under those circumstances?

Mr. Park: Oh, he might be, if he was between two washouts and could not get in.

Mr. Burgess: 30 hours?

Mr. Park: Yes.

Mr. Burgess: I never knew that condition existed at this time.

Mr. Park: The chances are that they were lying down asleep most of the time.

Mr. Stone: The chances are if they keep him out long enough he can sleep on his feet and need not lie down at all.

Mr. Park: It is quite frequently the case that he would be tied up under conditions under which he could be relieved, but he would be paid.

Mr. Stone: If he was relieved he would not be paid, would he?

Mr. Park: He would be paid the same. What I mean is relieved from responsibility.

Mr. Stone: Sleeping on an engine and still taking care of it?

Mr. Park: Oh, yes. You have seen men tied up for five or six hours, and a man watching an engine can sleep a good deal of the time.

Mr. Stone: I have seen them try to sleep, and in fact I have tried it myself, but I was never very successful in trying to hinge my back on one of these seats.

Mr. Burgess: I though we had got by the 30-hour period.

Mr. Stone: I have an exhibit prepared for all railroads in the Western territory, and 40 hours is quite common—65 hours is not uncommon. I don't know why Mr. Lauck didn't carry this out. There are quite a number beyond 40 hours and 50 hours.

Mr. Lauck: I thought 40 hours was far enough to go.

Mr. Stone: It is too far, so far as the man is concerned. Is that all of your exhibits, Mr. Lauck?

Mr. Lauck: That is all I have in this connection.

Mr. Stone: That closes our argument on productive efficiency, does it not?

Mr. Lauck: Yes, sir.

Mr. Stone: Mr. Chairman, that concludes our argument and exhibits on productive efficiency. We have some other exhibits on different lines that we will desire to put on after Mr. Sheean is through with his cross examination on productive efficiency. They are not connected with this in any way; they are separate and distinct.

Mr. Sheean: Mr. Lauck suggested to me that at the completion of the direct examination, if entirely agreeable, he would rather not go on with the cross-examination until Monday, and I said, of course, it was in the hands of the Board: that personally I had no objection to it.

Mr. Lauck: Just as the Board may wish.

The Chairman: Do you feel it would be more convenient to you to postpone the cross-examination until Monday?

Mr. Lauck: If it is convenient to the Board; but, if not, I will go right ahead.

Mr. Byram: I think Mr. Lauck has been on the stand so

long, Mr. Chairman, that we ought to give him that privilege of refreshing himself.

The Chairman: I have no doubt he is somewhat exhausted.

Mr. Lauck: I feel as if the monotony is getting very oppressive; it must be to you gentlemen, too.

The Chairman: I think perhaps we might as well adjourn until Monday morning at 10 o'clock. I have no doubt it will enable you to cut down your cross-examination.

Mr. Sheean: I think probably it will.

(Whereupon, at 3:40 o'clock P. M., January 8, 1915, an adjournment was taken until January 11, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 11, 1915.

Met pursuant to adjournment at 10:00 o'clock A. M.
Present: Arbitrators and parties as before.

Mr. Stone: Before we start in, Mr. Chairman, Mr. Carter would like to make a short statement.

Mr. Carter: Mr. Chairman and gentlemen of the Board. I feel that my absence has perhaps inconvenienced every one. At the time I left here I had in preparation four or five exhibits. They were in type, but had not been completed. I find that they are in the same condition today as when I left. I learn that the probabilities are that the cross examination of Mr. Lauck will not take up more than the present session, or today. We have two exhibits that could be presented in the morning, but those that are in—page 4 not printed, I am sure cannot be prepared by tomorrow. It would seem to me that I shall have to ask a special favor of counsel for the railroads and the court, in that, if my request is granted, it will be a departure from usual practice.

The request I would like to make is, to present this information at some later date, with the understanding that just as soon as it is prepared, copies will be furnished counsel for the railroads, without waiting for its introduction.

It is very unfortunate that the situation is thus presented,

but unless something of that kind is done, we shall have to leave out a great deal of matter we intended to present.

The Chairman: Is that agreeable to counsel on the other side?

Mr. Sheean: If your Honors please, I had anticipated from the suggestions made, that they probably would not complete the case for the proponents before about Wednesday. I have not really outlined a statement as to the facts that we expect to introduce, because—as indicated at the outset—it would depend very largely upon what the proof was as introduced by the proponents.

Now, it seems to me that if Mr. Carter is able to indicate by his witnesses just what is to be covered by the exhibits, using your witnesses now, Mr. Carter, but supplying the detail of that at a later time, that we could proceed along that line without any serious embarrassment, and I want to do anything that will aid in expediting and at the same time accommodating Mr. Carter.

We probably will be able to work it out in some way with the completion of the examination of this witness. However, I should like to have the opportunity of putting in somewhat complete form just what matter we will introduce, and what we will be called upon to introduce, will be, of course, in some degree, dependent upon the extent to which these further exhibits may prove or tend to prove certain requests that were made here.

Mr. Carter: I must confess that I was greatly surprised in the fact that only four days was consumed with Mr. Lauck. I knew what we had to present, and I thought much more time would be consumed. I thought I would have at least two or three days of this week, and I would be ready by Wednesday, but we cannot suspend operations until Wednesday. I never dreamed that Mr. Lauck would be through so shortly as he was.

Now, I can outline the matter that I have in preparation. Please understand, the witnesses are simply witnesses who are preparing this matter for me. Most of it was prepared before I left. It is in about the same condition now as when I left. Perhaps I am to blame—I know I am to blame, for not having it printed while I was gone. I anticipated too much. I can outline what it will be, if that would be agreeable.

Mr. Sheean: Well, I think probably that will be, Mr. Carter.

Mr. Carter: First we will be able, in the morning, if it is deemed expedient, to place our general secretary and treasurer on the witness stand, to testify to certain mortuary matters or statistics concerning our organization. His testimony will be quite brief.

Following Mr. Hawley, our general secretary and treasurer, will be Dr. W. B. Cory, our general medical examiner, who has two exhibits on similar subjects.

Now, nothing else is printed. We have in preparation a great amount of matter, which is simply quotations from railway technical experts and railway technical journals, all of which corroborate what we have been attempting to prove.

We have a large volume on what the larger engines have done; what the increased tonnage of trains has done; what the superheater has done. In fact, we prove by railroad officials all that we contend, and then more. That is in type, but not printed, I am sorry to say. I hoped it would be in book form when I got here this morning, but it is just as I left it on the night of the 31st of December.

Now, we have, in addition to that, a volume on electrical progress, electrical economy; all being reproductions of opinions of technical experts and railway technical journals. We show what has been done in the installation of electrical matters, and what is going to be done; what saving has been accomplished, from an economic viewpoint; nothing original; all extracts and reproductions of what has been said by railway technical experts and railway journals.

We have a special exhibit on applications for employment, showing the form of application. We have had a person working on that, and that is all ready for the printer, but the printer did not get that, I am sorry to say.

We have two forms—I have not had time to consult with Mr. Stone—to be presented by Dr. Harris. Do you know where he is, Mr. Stone?

Mr. Stone: We have wired for him and he ought to be here tomorrow or Wednesday morning.

Mr. Carter: They are in progress and I am perhaps entirely to blame for not issuing positive orders to complete the work in my absence,

Mr. Sheean: It seems to me probably entirely feasible

that the outline given by witnesses as to just what their tabulations will show, will be sufficient. You spoke of Dr. Cory, that he had made certain tabulations. Upon the stand, he can indicate that he has certain tabulations in course of preparation and indicate what they are in outline, and the exhibit itself can be prepared and introduced at a later date.

Mr. Carter: It is impossible for him to go on the stand as a witness, and I fear that my absence will make it impossible for us to present any of this testimony in that form.

Mr. Sheean: It is conceivable, as I said to you, that the cross examination may take longer than I anticipate, because I see the opportunities of collateral development always on certain propositions; but in good faith, I stated that I did not see how it could take longer than today. But, it may be that this bridge will not have to be crossed, although I, in good faith, believe that the cross examination will not take longer than today. I will be glad to co-operate in any way, in the line that you suggest, or in any way that will enable us to get along as rapidly and as expeditiously as possible. However, it does not seem to me entirely feasible to outline just what the presentation on behalf of the railroads will be, until I know what proof I have to meet on certain propositions; but I think perhaps we will not have to cross that bridge until later in the day, Mr. Carter.

Mr. Carter: It may be a strange assertion to make, but I was disappointed when Mr. Sheean told me a while ago that he was going to get through so quickly. I was in hopes he would take two days to cross examine Mr. Lauck, when I would be ready; but when he told me he feared he would not be able to use more than a day, I knew I would not be ready tomorrow.

Mr. Stone: I think you are borrowing unnecessary trouble; judging from the past, I think it will run some time into Tuesday, and by the time you are through with your other witnesses you will be ready to present the tables.

Mr. Carter: If I can take my chance with Wednesday morning, that is all I ask.

Mr. Park: These articles you speak of, from mechanical engineers and electrical engineers, are they based on facts, or merely the opinions of these men, as to prospects of electrification.

Mr. Carter: I think they are largely expert opinions, and I have quoted you, Mr. Park, quite extensively.

Mr. Park: You can leave that out, if you want to.

Mr. Carter: I think that it will be expert opinions, and a great many facts. We have a large number of actual tests to show results, but in many instances it is the opinion of an expert.

Mr. Park: The electrical engineers, a good many of them, think it is very easy to electrify the railroads; but the people who furnish the finances and operate the railroads thereafter, do not find it so easy.

Mr. Carter: The fact of the matter is, Mr. Chairman and gentlemen, that every prominent railroad official who has written a book, we have quoted; whether it is in somebody else's book, or wherever it is, wherever, in every day proceedings, of the Master Mechanics' Association, of the Traveling Engineers' Association, every article written in any of their technical publications, by yourself and others, has been very carefully read and reviewed. And, I must confess, that we are only quoting that part which is in our favor.

If I can have until Wednesday morning, I will be ready. Some of my friends I have not quoted. There is one friend I have not quoted, my friend Morrissey, I have never quoted him.

The Chairman: I am sure that we can make progress without any inconvenience to the other side.

Mr. Carter: Then, if you will excuse me, I will get busy.

The Chairman: Yes, sir. You may proceed with the cross-examination, Mr. Sheean.

W. JETT LAUCK was recalled for further examination, and, having been previously sworn, testified as follows:

CROSS-EXAMINATION.

Mr. Sheean: Mr. Lauck, will you turn to the first exhibits you introduced, numbers 21, 22 and 23? As I understand, Mr. Lauck, in Exhibits 21, 22 and 23 you have taken merely the totals of the various things shown in the graphic sketches.

Mr. Lauck: For the totals, yes.

Mr. Sheean: For the entire period?

Mr. Lauck: Yes.

Mr. Sheean: There has been no effort in any of these exhibits to reduce the showing to a per mile of road operated?

Mr. Lauck: No, sir.

Mr. Sheean: In case of the various railroads from 1890 to 1913, there may have been great changes in the actual mileage operated?

Mr. Lauck: Yes, there may have been. Especially from 1890 to 1913, very remarkable changes.

Mr. Sheean: So that there is no comparison made in that period in any of these exhibits as to the showing per mile of road or per dollar of capital, or per dollar of investment?

Mr. Lauck: None at all, no, sir.

Mr. Sheean: And on this showing a road which had changed its mileage from one hundred to four hundred miles, and operated with equal efficiency upon the added three hundred miles, would show an increase of 300 per cent?

Mr. Lauck: I don't see how the mileage would affect that, Mr. Sheean.

Mr. Sheean: Well, I say, the road which had one hundred miles in 1890 and which had four hundred miles in 1913, and was operated with equal efficiency on the last three hundred miles as on the first one hundred, it would show an increase of 300 per cent here? (Indicating.)

Mr. Lauck: Yes. It would show it on the table there.

Mr. Sheean: And the alleged efficiency might simply be that it had added that many miles, become four hundred miles instead of one hundred miles?

Mr. Lauck: I don't think that would affect it, because the mileage factor would not enter in. That is, you are comparing a certain ton mileage with a certain train mileage. If you increase your road four hundred miles, or double the length of the road, you would also increase your train mileage.

Mr. Sheean: Just turn to page 2 of that first exhibit. I think we do not disagree except perhaps in the language of stating it. Page 2 of exhibit 21, number of locomotives in service, an increase of 151.03 per cent. Now, that increase in the number of locomotives may be only commensurate with the added miles of the railroad.

Mr. Lauck: Yes, or the added traffic of the railroad.

Mr. Sheean: Or the added traffic, one or the other.

Mr. Lauck: Yes, or the traffic.

Mr. Sheean: And the number of ton miles, an increase of 343 per cent, they may have been operating that number of miles in 1913 over 343 per cent more miles of track?

Mr. Lauck: That may be true; but of course your train miles would increase proportionately.

Mr. Sheean: The freight train miles show an increase of 68.82 per cent. It might be that the added train miles was also due to increase in the number of miles of road?

Mr. Lauck: Yes.

Mr. Sheean: In other words, on the comparison between 1890 and 1913, the only factor that remains throughout the comparison, is the corporate name—that is the Atchison, Topeka & Santa Fe, the railroad of 1890, as compared with the Atchison, Topeka & Santa Fe of 1913, taking the name as the same, and there has been no effort to reduce it either to per mile of road operated or per dollar of investment, or anything of that sort?

Mr. Lauck: No. As I explained in the direct testimony, I took the operating unit designated by these names, as reported to the Interstate Commerce Commission for the different years used. The comparison is a comparison of efficiency in handling traffic; that is of so many ton miles of increase in freight traffic, being handled with a comparative decrease of freight train miles.

Mr. Sheean: In the comparison which the Interstate Commerce Commission makes, they ordinarily reduce it to per 100 miles of line, do they not?

Mr. Lauck: They use that designation, yes, sir.

Mr. Sheean: But, for instance, if you take in the comparison which you make, I think, of the Chicago Great Western —that is one that you make—if the Chicago Great Western Railroad was operating merely in Iowa and in Minnesota, say, for the purposes of illustration, on 400 miles of track in 1890 and if, in 1913, it was operating on 1,200 miles of track, you compare all the traffic that they did on the 400 miles of track with all the traffic that they did on the 1,200 miles of track in 1913?

Mr. Lauck: Exactly. I don't see how that affects the computation at all. I am at a loss to understand.

Mr. Sheean: Certainly, in your percentage of increase of

locomotives in service, reduced to a percentage basis of 151 per cent in locomotives, might not show any increase whatever in locomotives per mile of track that they operated?

Mr. Lauck: That might be true. The object of that is to show the comparative decline in percentage of locomotives as contrasted with traffic movement. That is, more traffic was moved with fewer locomotives, and I thought if there was any criticism of taking the operating unit now as compared with the past period, it would inure to my disadvantage, for the reason that the extension of a great many of these lines has been in the way of branch lines or feeders that have a smaller trainload than the main line. Although I can readily see in other cases where development of the country or increase in population and so on would bring an added amount of traffic on the original lines, or some small extension of the line.

Mr. Sheean: A mere change in the aggregate mileage would necessarily make the bases to which you are making comparison, change from year to year, would it not?

Mr. Lauck: Yes, that would be true. It would make the bases change, but I cannot see how it would affect the result except to make the productive efficiency proportionately less, on account of the addition of the smaller lines, which would not be as efficient as the main line.

Mr. Sheean: Let me understand just what you mean by the productive efficiency. Which of the elements shown in this sketch show the bases on which you deduce productive efficiency?

Mr. Lauck: The fundamental elements are the increase in the trainload and in the tractive power, and the consequent ability to move a large amount of traffic with fewer freight miles, and then applying that—they are the fundamental factors, that is, of all railroad development,—that is, you have a growth in traffic and you increase your machine, your locomotives, and you move that traffic with fewer freight train miles by increasing the train load.

Then, carrying that further to the men—the locomotive engineers and firemen, if the wage outlay has not kept pace with the development of the train load and the increased ability to move traffic with a fair number of freight train miles, you have a gain in the output per each 1,000 invested. That is the skeleton outline of my argument.

Mr. Sheean: Now, first you say the increased tractive effort of locomotives?

Mr. Lauck: Yes.

Mr. Sheean: The increased train load?

Mr. Lauck: Yes.

Mr. Sheean: Now, we all agree upon those changes having taken place. Are those the only important factors here in deducting productive efficiency of firemen and engineers?

Mr. Lauck: I think they are the basic and fundamental factors, yes, sir; the increased tractive power. The increase in the capacity of cars. The consequent ability to put a heavier train over the road. Granting, of course, full credit to increased capital investment in the way of elimination of labor, reduction of grades, heavier rails, better road beds, and the increased cost to capital of this heavier equipment.

Mr. Sheean: Then in what of the elements shown statistically here do you find reflection of increased productivity of the engineers or firemen?

Mr. Lauck: Taking those factors as the basis, as I just stated, if the wage outlay for locomotive engineers and firemen has not kept pace with those other factors, you would have a greater output for each $1,000 outlay for locomotive engineers and firemen in terms of ton miles than before? You have got a greater output in terms of ton miles for your train miles, and if a heavy gain per train mile has covered additional cost and left a net revenue available after the satisfaction of all additional costs, then you have made a gain in productive efficiency of your road, based on the outlay for labor or for locomotive engineers and firemen.

Mr. Sheean: Now, in the periods prior to 1898, I think you said that there was a change in the manner in which the accounts were kept under orders of the Interstate Commerce Commission as to what was operating revenue?

Mr. Lauck: 1908?

Mr. Sheean: 1908 I meant to say.

Mr. Lauck: Yes.

Mr. Sheean: The period prior to 1908 classified certain things as operating expense which are not now considered operating expense?

Mr. Lauck: Yes.

Mr. Sheean: That is, take, for instance, the Santa Fe, operating here into the Dearborn Station. Prior to 1908, there would be charged as a part of their operating expense, the rental that they pay for using the tracks to get into the Dearborn Station?

Mr. Lauck: I think that was charged into operating expense.

Mr. Sheean: And since that date it has not been thus charged?

Mr. Lauck: It was charged to gross corporate income, if I remember correctly.

Mr. Sheean: So that the only periods in which the accounts are on just the same basis is in Exhibit 23, comparing 1909 to 1913?

Mr. Lauck: Technically that is correct, but I should think that the other charges prior to that time would more than offset any changes or anything that would work to the disadvantage of the corporation. That is the general irregularity in the accounts would tend to increase the operating ratio prior to 1907, as compared with periods subsequent to 1907. The tendency to charge permanent improvements, charge discount on securities, or any item that might be seen fit to be charged, or could be charged perfectly properly under the accounting rules.

Mr. Sheean: And those were the accounting rules of the Commission?

Mr. Lauck: Yes.

Mr. Sheean: But the fact remains, nevertheless, that the method of accounting and what was to be charged to operating expense has changed since 1908?

Mr. Lauck: Yes, that is true, but, as I say, I do not think it would have affected it adversely. It is true that it has changed. Your question, answering it directly, it has changed.

Mr. Sheean: Well, taking the period now covered by your Exhibit 23, and turning to page 9, by which you show the detail from which the sketch is produced on page 7, I think.

Mr. Lauck: 23, did you say, Mr. Sheean, or 21?

Mr. Sheean: 23. You have made no comparison there, Mr. Lauck, I think, of the traffic units per revenue train mile—

Mr. Lauck: No, I dropped the traffic unit after 1890. The traffic unit is—as I explain, grew out of the desire to get a

common unit. As you are well aware, there is no common unit of transportation to express what you turn out as compared with the operating expenses.

Mr. Sheean: Well, in the previous exhibits, as I recall them, Mr. Lauck, there being no division shown between freight firemen and passenger firemen, you have, in addition to showing the increase in freight traffic, shown what the increase is in traffic units by taking the whole payroll and comparing that with the whole output. Now, it is a fact, is it not, that in this last period of 1909-1913, that if you compare the traffic units, as you have in the other cases, with the entire revenue miles, that there will not be a showing of increased productive efficiency during that peroid?

Mr. Lauck: Yes, I think that is true.

Mr. Sheean: So that whether there is any increased productivity in the freight firemen depends upon whether your division of the entire revenue miles—your assignment to freight—is or is not correct?

Mr. Lauck: No, it does not depend upon that. The traffic unit, as I take it, gave an extra advantage to the other side of the comparison.

For instance, in the Western territory—I don't know whether I remember the figures correctly or not—but I believe the revenue per passenger mile is about 2 1/5 cents. The average receipts per passenger per mile. The average receipts per ton per mile is about .88 of a cent. So that in making the comparison, if I should do it here, I should not apply—or should have done it in 1890, in order to have a fair comparison, because charging all the expense against traffic units, or charging all expense against different units of output, which represented different costs, I should also have taken into consideration to have given myself the proper advantage of comparative revenue gain, so you would have 2½ passenger miles practically equaling 1 ton mile.

Mr. Sheean: But that would be inconsistent, would it not, Mr. Lauck, with your suggestion the other day that what the engineers and firemen were turning out were the units of ton mile or train mile, and you were not concerned with what they produced in revenue?

Mr. Lauck: At this point I am simply considering a num-

ber of things, that is, arbitrary negotiations; but to get the proper number to be fair to the engineers and firemen, you would have to multiply the passenger mile by over 2 or say 2½ times, and then add it to your ton miles. Even then it would be—on the basis of traffic units—meeting your question squarely, it would probably not show as great a productive efficiency as in the case of the freight traffic.

Mr. Sheean: Well, not as great a productive efficiency. Is it not a fact that your total here on page 9 shows that, if you take the per $1,000 of compensation paid engineers and firemen, that they are producing in 1909, in this last period, less traffic unit per $1,000 of compensation than they were preceding that time?

Mr. Lauck: Taking the traffic unit in the same way that I did in 1890, yes. Taking it on a fair basis to the locomotive engineers and firemen, I have never worked that out. I don't know.

Mr. Sheean: I am only talking about your own table. If it has any relevancy, in the preceding period of 1890 to 1913, if it is on a proper basis for that period, carrying it on the same basis through 1913, you show a decreased productivity in traffic units?

Mr. Lauck: If I should adopt that same unit there, which I adopted in 1890, simply arbitrarily saying one passenger mile is equal to one ton mile, which gives about 250 per cent advantage to the railroads' side of the contention, yes; but it would seem to me, it would not be a fair comparison. I do not think it is fair back there; it is simply an effort to get some line on what would be the joint result.

Mr. Sheean: Well, in the reports to the Interstate Commerce Commission, under the rules which they have prescribed, you simply find there the total payment to engineers and the total payment to firemen?

Mr. Lauck: Exactly.

Mr. Sheean: You find the total ton miles, freight, and the total passenger miles. Now, taking those together, and adding them, getting traffic units, from 1890 down to this last period, and assigning the whole compensation to engineers and firemen to the traffic units which they produce, you show an increasing productivity in these other periods?

Mr. Lauck: Yes, from 1890.

Mr. Sheean: Yes, but if in the last period, from 1909 to 1913, you carry out the same formula, you show a decreased productivity in the combination of traffic units?

Mr. Lauck: On that basis, which would be manifestly unfair to do.

Mr. Sheean: Well, if unfair in this last table, it is equally unfair, or perhaps not equally, but also unfair, in the other tables.

Mr. Lauck: Unfair to the locomotive engineers and firemen, yes.

Mr. Sheean: In order, then, to show in freight this increase of practically 5 per cent to both engineers and firemen in the last period, you make that deduction in dividing the total payroll of engineers and firemen on the basis of the revenue train miles made in freight and passenger service?

Mr. Lauck: Exactly.

Mr. Sheean: Now, you said, Mr. Lauck, that you had carried over to freight 25 per cent of the switching mileage, but the Great Northern detail that you handed me apparently did not carry switching there.

Mr. Lauck: I believe I did say that, and it was a mistake, for the reason there were no switching miles reported prior to 1908; if I remember correctly, it is the mixed and special train miles.

Mr. Sheean: Exactly, so that you carried in this last period, when switching mileage is reported separately—

Mr. Lauck: No, that is switch locomotive miles which is reported, I think you will find, and not switch train miles.

Mr. Sheean: No, but switch locomotive miles is carried separately since 1908.

Mr. Lauck: No, I say that if I mentioned switching, I did not intend to do so, because it grew out of the discussion. We were talking of switching, mixed and special train miles. There are no switching miles in the computation at any time, I do not think.

Mr. Sheean: But switching miles, Mr. Lauck, is in the total compensation, or money paid engineers on switch engines is in the total compensation, is it not?

Mr. Lauck: It is in the total compensation, and charged

against the revenue freight; therefore the revenue freight has to bear that switching, revenue locomotive payment.

Mr. Sheean: You mean the revenue miles?

Mr. Lauck: You see, I am charging the costs of outlays for the engineers and firemen to the revenue traffic.

Mr. Sheean: To the revenue traffic on what basis? On the basis of revenue miles?

Mr. Lauck: On the basis of revenue freight train miles to total revenue train miles, making an allowance of three-quarters of mixed and special train miles to freight, and one-fourth to passenger.

Mr. Sheean: Well, but as to the part of the payroll that is paid to switch engineers, Mr. Lauck, where, or in what manner, do you make assignment of that part of the pay as between freight and passenger distribution, that you make here?

Mr. Lauck: The assignment would be in accordance with the ratio derived as a whole.

Mr. Sheean: That is, it would be distributed here on the same ratio that the freight train miles, freight revenue train miles, bears to passenger revenue miles.

Mr. Lauck: Yes, not having any switching miles to distribute, only on a locomotive mile basis, the cost would be distributed in the general ratio that is so derived.

Mr. Sheean: That is, you take the total payroll here: let us just take in dollars instead of millions for a while; you take the total payroll, we will say, of $1,000; then you find the revenue freight miles, we will say, are 5,000, and the revenue passenger miles are 5,000 miles, and you would distribute that entire payroll of $1,000, fifty-fifty.

Mr. Lauck: Of course, you made no allowance there for the mixed and special service.

Mr. Sheean: I mean irrespective of that.

Mr. Lauck: Yes, which are comparatively unimportant.

Mr. Sheean: But, on your distribution in that way, you would carry 50 per cent of the total switching to freight?

Mr. Lauck: And 50 per cent to passenger.

Mr. Sheean: And 50 per cent to passenger?

Mr. Lauck: Yes, which manifestly should not be.

Mr. Sheean: Which manifestly should not be?

Mr. Lauck: Yes, but no other recourse could I have in making the computation.

Mr. Sheean: Let me see about that, Mr. Lauck: Since 1908, where they report the actual number of switch locomotive miles, as they do in another table, do they not?

Mr. Lauck: Switch locomotive, yes, not train.

Mr. Sheean: Switch locomotive miles, you could have ascertained what the actual switching miles were?

Mr. Lauck: I could have ascertained since 1908 what the switch locomotive were, but not the switch train, and if I had used that, it would probably have exposed that to more serious criticism than if I had not used it.

Mr. Sheean: Let us see—

Mr. Lauck: But the point about it all is, Mr. Sheean, that I do not hold this to be accurate, or hard and fast; it is simply to develop this tendency by the best means I have for doing it. It may vary widely in percentages.

Mr. Sheean: It may vary very widely?

Mr. Lauck: Yes.

Mr. Sheean: In fact, the only comparable basis here of which you have accurate knowledge, is the total payroll, and the total productivity, both freight and passenger.

Mr. Lauck: If I had a common unit, but any common unit that I might develop would be severely criticised, I think; because there is no common unit, except you give a proportion of passenger miles to ton miles on the basis of cost of producing passenger miles or revenue freight. I do not know what it would be on the basis of cost; we do not know; but on the basis of revenue, it would be about two and a half passenger miles to one ton mile.

Mr. Sheean: In this example that I used, of $1,000 paid engineers and firemen, and an equal number of passenger miles and an equal number of freight miles made, you distribute all the switching expense equally between those two classes of traffic?

Mr. Lauck: Yes.

Mr. Sheean: And, is it not a fact that, in carrying out here on page 9, your distribution of $1,000 compensation to freight firemen, that you have assumed that the freight firemen, or the amount paid to freight firemen, was in the same proportion that your passenger revenue mileage bore to your freight mileage?

Mr. Lauck: Yes, or engineers, either.

Mr. Sheean: Or engineers, either, yes.

Mr. Lauck: Yes, just to get this general tendency.

Mr. Sheean: You know, that of this $1,000 total output to all engineers and all firemen, a very much larger proportion than the distribution made here falls on freight, don't you?

Mr. Lauck: Well, I do not, absolutely, no. I should think that there would be proportionately more, but it works to the disadvantage of the passenger traffic, of course.

Mr. Sheean: And it works to the advantage of the freight in this showing of the 5 per cent increased efficiency, doesn't it?

Mr. Lauck: It would seem to. That is, it would seem to, but it is the best we could do under the circumstances. Of course if we put it on the per man basis, it would show for the engineers and firemen, if you had the data,—if I had access to the proper records, I think a per man comparison would give a much higher degree of efficiency.

Mr. Sheean: That, of course, Mr. Lauck, is not predicated upon anything shown in the statistics here—the per man basis?

Mr. Lauck: No, not in this exhibit. That is predicated on the reports to the Interstate Commerce Commission.

Mr. Sheean: And those reports on which you predicate that statement, you do not accept for the purpose of any tabulation or comparison here?

Mr. Lauck: I do not, no. It is all based on this, so far as the argument here is concerned, and working out the tendency as best I could, there were a lot of factors that affect the one way adversely and another way adversely, but I think the tendency is clear, though.

Mr. Sheean: By the tendency do you mean anything more than that there has been an increase in the train load and an increase in the productive power of the engines?

Mr. Lauck: I think there has been a pronounced tendency that way; a decreased train mileage, a decreased locomotive mileage, is shown in this exhibit, and an increased train load and increased locomotive load, and a pronounced decline in the cost of locomotive engineers and firemen per unit of output.

Mr. Sheean: Well, now, comparing the unit of output. The compensation, in this last period, to locomotive engineers and

firemen per traffic unit, has increased—the compensation to locomotive firemen and engineers as a class—more money is paid them in this last period for the traffic units they are turning out than was paid in the previous period?

Mr. Lauck: Per traffic unit?

Mr. Sheean: Yes.

Mr. Lauck: I think there is a tendency to rise in cost. We showed that in the exhibits on increased operating cost. While the general tendency was a decline, a recent tendency as to labor cost was to gain a little on the units; but the point that you have in mind, evidently, if I get your point correctly, is that there is a constantly decreasing output here which comes down to a very small percentage in ton miles, and, if applied to traffic units, might be eliminated altogether.

Mr. Sheean: Would be eliminated, by your own table, would it not?

Mr. Lauck: If you accept that traffic unit there, which, as I say, is manifestly unfair. I used it to show a general tendency. I do not think it is a fair comparison except it is very favorable to the railroad side of the contention.

Mr. Sheean: And to the extent that you have charged up to passenger traffic more of the compensation of switch engineers and firemen than is actually assignable in operation, to that extent your five per cent is larger than it should be?

Mr. Lauck: I think it would have a tendency in that direction, yes, sir. The imperfections are such that I cannot say anything accurately. I think it would have a tendency, to be perfectly frank, in that direction.

Mr. Sheean: So that if the total traffic units that the engineers and firemen have been delivering to the railroad companies for the $1,000 of compensation has declined, and they are furnishing to the railroads less per dollar than they did previous to the last increase in wages, then, whether they are doing more in freight than they are in passenger, depends upon the correctness or incorrectness of your distribution of the payroll between freight and passenger?

Mr. Lauck: The distribution there is a rough approximation, growing out of the impossibility of getting a correct one, and in comparing this later four years on that basis, shows a declined productivity. Of course, in your passenger there, the

reason they are considered, just the number of passenger miles you have added to the passenger train load, you have added to the productive power of the locomotive. You have been moving an increased number of passenger trains over the road, but the statistics show you have not increased your passenger load, and the engineers and firemen are doing more work, and of course cannot be responsible for the fact that the passengers are not in the train.

Mr. Sheean: Just what statistics do you refer to as showing that they have not increased per passenger load?

Mr. Lauck: I think if you will refer to most any road you will find that there has been a very small increase.

Mr. Sheean: Yes, but there has been always an increase. I thought you said it shows that they have not increased.

Mr. Lauck: A great many roads have not. They have lost.

Mr. Sheean: But the railroads, as a whole, in the Western territory, according to the statistics of the Interstate Commerce Commission, show an increase in the passenger load steadily through all these years, do they not?

Mr. Lauck: Have you any statistics to show that?

Mr. Sheean: I think this does (handing book to witness).

Mr. Lauck: That isn't given in there, passenger miles—per passenger train mile.

Mr. Sheean: I think one of the tables shows that.

Mr. Lauck: I don't know. (Handing book to counsel.) I notice in a great many roads, though, that the passenger miles have increased and that the number of passengers per train has not increased. Of course, you have a heavier train with a smaller number of passengers or practically an equal number of passengers. You have the increased work of the engineers and firemen, but, due to this duplication, which may be necessary or unnecessary, in passenger traffic, you have, in terms of these numbers or units, a declining output, which I should claim the engineers and firemen were not responsible for. That is, you still have the other factors remaining constant.

Mr. Sheean: Now, just what are the other factors here?

Mr. Lauck: The heavier train—

Mr. Sheean: Heavier train?

Mr. Lauck: The heavier locomotive load.

Mr. Sheean: Yes.

Mr. Lauck: The movement of a larger volume of traffic with fewer train miles.

Mr. Sheean: Yes.

Mr. Lauck: And the heavier tractive power.

Mr. Sheean: Now, in what way, statistically, is that reflected in the engineers' and firemen's contribution?

Mr. Lauck: In the case of the passenger traffic, if the railroads ran more passenger trains of a heavier weight and larger locomotives, requiring the shoveling of more coal, and if these trains do not develop units of passenger miles, why, of course, the outlay for engineers and firemen per unit produced would be reduced in numbers; but it might be through the higher rate you get an increased train mile earning—which would be doubtful, because there would not be a tendency toward a higher rate. In fact, on no ground, the fact that the units were not in the train would not be a matter for which the engineers and firemen would be held responsible, it seems to me, but they are still doing a greater amount of work. That illustrates why, so as to make the basis of the traffic unit, you are bringing more passenger miles, which are worth, in terms of revenue, 2½ ton miles, and you are bringing a comparative decline in the passenger traffic, but you still have the train miles and still have the outlay for locomotive engineers and firemen and still have an increase in proportion of total outlay going to locomotive engineers and firemen; but in number of units, due to this aspect of the passenger traffic—the demand of the public for trains, or whatever it may be due to—competition of railroads for passenger traffic between different cities—leading to an unnecessary duplication of trains.

Mr. Sheean: Now, Mr. Lauck, we have, as we admit, the heavier train, the heavier locomotive, the heavier volume of traffic. We have also, in addition to that, an increase in wages granted in a part of this period shown here.

Mr. Lauck: Yes.

Mr. Sheean: Now, I understood your statistics to be an effort to ascertain whether or not the increase which was granted in this period kept pace commensurately with the increase in other respects. That I understood to be one reason why you carried this period back practically a year before the last increase in wages.

Mr. Lauck: Yes. But if you should run the heavier train without putting the units on—suppose, in a freight train, you duplicated the number of cars, suppose you hauled 100 empty cars instead of 30 loaded cars, you would not have any ton miles on the train—take your company freight, which, according to this computation, shows a certain per cent of additional freight should be added to the five per cent here, because that is being hauled free on this idea I have worked out—suppose you hauled a long empty freight train that had no tons on it—

Mr. Sheean: That is just the thing I am trying to clear up here, if I can. You make certain deductions from statistics, and then, as I understand it, you occasionally, in the text, depart from the statistics. I am trying to ascertain which of these deductions are made from the statistical information and which from your general observation. Now, dealing solely with the statistics, for the time being—statistics showing the heavier train, the heavier locomotive, the heavier volume of traffic—

Mr. Lauck: Right there—

Mr. Sheean (continuing): —and the greater amount of coal consumed—

Mr. Lauck: Right there, that is my fundamental contention. Now, in order to supplement that correctly and show it in terms of locomotive engineers and firemen, I should be able to show—that is, meeting the thing as it is—I should be able to show for each dollar of outlay and increased productivity on the part of the locomotive engineers and firemen, or an increased return to the railroad; otherwise, the idea of productive efficiency, based on profit, would not hold. There I am confronted with these difficulties as to number of things, that is, these arbitrary units, ton miles or passenger miles, produced by this dollar of outlay. Any computation that I might make would be subject to wide variations, and I can only show this general tendency which I do not claim to be accurate; but that it does show a general tendency and it may vary widely one way or the other.

Mr. Sheean: But, treating the firemen and engineers as a class or treating all freight firemen and all passenger firemen as merely firemen, making no segregation, as between freight and passenger, the fact is, from the statistics for 1909 to 1913, the engineers and firemen, treated collectively, are shown to have

not delivered to the railroad companies, per dollar of compensation, as much in the units of traffic as they did previous to that time.

Mr. Lauck: No, I don't think that is true. I think if you take the unit of traffic that we used and give this great advantage to the railroads, why, it would show that; but I think that would be so manifestly unfair that it would not appeal to any one considering the question. For instance, if 2½ passenger units or passenger miles are the equivalent of 1 ton mile, then you consider that the firemen's and engineers' output, in one passenger mile, as equivalent to one ton mile, why, it would seem to me it would not be a conclusion that any one would hold to; and also the facts about passenger traffic, which I have mentioned—

Mr. Sheean: Now, just in order to clear up again—

Mr. Lauck (continuing): —then you have a decreased cost per ton mile, so far as the comparison runs further—that is, granting the distribution is correct here, if you would carry it out on the cost basis, you would still have your declining cost, which would show the same tendency as is exhibited in the unit basis.

Mr. Sheean: Now, the period used here, 1909; that is, the fiscal year ending June 30th, 1909,—I think you said on Friday that you took that as the beginning in order to cover the period before the last increase was granted to engineers and firemen?

Mr. Lauck: Yes, and for the further fact that, as I was told, in the previous arbitration which the firemen had, their concluding statistics were for the year 1909, and so as not to have an hiatus or gap, I took 1909.

Mr. Sheean: So that, Mr. Lauck, the firemen, in an arbitration here, which was decided in May, 1910, produced the statistics showing all of this increased productivity—I won't say all of it, but they covered the period down to 1909, as to the increased coal and increased labor and so forth.

Mr. Lauck: I don't know about that arbitration. I was just told that. I don't think they went into the productivity; it was cost of living, I think, the Award was on, as I remember about it. However, I won't argue that. I accept your statement of it.

Mr. Sheean: The statistics to which you refer covered the period down to the year 1909, did they not?

Mr. Lauck: That is what I recall,—what I was told. That is why I took this year here, including the year 1909.

Mr. Sheean: Including the fiscal year 1909? The Award to the firemen was made practically at the end of the fiscal year 1909—in May, 1909?

Mr. Lauck: I think so.

Mr. Sheean: And the engineers' increase was given in the fiscal year 1910—December, 1910—that would carry it into the fiscal year 1911, would it not?

Mr. Lauck: It would, yes, sir.

Mr. Sheean: So that intermediate here, between 1909 and 1913, there has been an increase in the compensation of both engineers and firemen—you know that to be the fact?

Mr. Lauck: Yes—that is, I am so advised.

Mr. Sheean: Is there any way, from the statistics which you have introduced, by which you can determine whether or not the increase which was granted them in that time has kept pace with their increased productivity during that period?

Mr. Lauck: You can exhibit this tendency. I know of no way, on basis of the information I have, to state it accurately. Still, I do not think it would be held—I am sure I would not believe that for this period, 1909 to 1913 or 1914, that previous to 1909 the men had received the results of their previous productive efficiency.

Mr. Sheean: Let us just assume that, Mr. Lauck.

Mr. Lauck: Well, I would not care to assume that.

Mr. Sheean: Well, you can hypothetically assume that an award made covering it up to that time—it is possible to assume that.

Mr. Lauck: I could hypothetically assume it, but I could not believe it.

Mr. Sheean. Well, assuming, as a mere hypothesis, that in 1910, the men who made the award did bring the matter up to that date and make due and proper allowance for increased productivity, are you able to determine, from the statistics, whether or not there has been, in this intervening period, any change in the situation?

Mr. Lauck: I think that in the fundamental factors there has been a pronounced change.

Mr. Sheean: What are the fundamental factors?

Mr. Lauck: The train miles, the locomotive load, the tractive power. I know there has been a greater increase in train loads on Western railroads in the last five years than in the preceding five years. That is shown by the reports of the railroads.

Mr. Sheean: Is that shown in this distribution as to whether that took place since 1910 or not?

Mr. Lauck: I was just going on to say that in applying it to engineers and firemen, the tendency, as exhibited here, would be a five per cent tendency. To my mind it is a clear tendency. I think it does not measure the real amount of increased productivity of the men, but it is exceedingly difficult to do it on the statistics based on the facts that we have available to do it.

Mr. Sheean: As I remember it, you said here, as well as when you testified in the Eastern case, that this had rather impinged on the firemen, because of the increased coal shown here—the burden?

Mr. Lauck: The increased work, yes.

Mr. Sheean: The increased work?

Mr. Lauck: So far as we have any data showing that.

Mr. Sheean: So far as you have any data showing that?

Mr. Lauck: Yes.

Mr. Sheean: Well, in the table carrying out here the increased coal consumption, on page 7, you show an increase of 24.63 per cent of the coal consumed. That is, irrespective of any change in mileage that there might be, of course.

Mr. Lauck: Oh, yes, the total amount of coal consumed, yes.

Mr. Sheean: Well, now, do you think that the figures of coal consumption there are of some significance in connection with demonstrating that the fireman has contributed to this increase productivity?

Mr. Lauck: I think they are of some significance, but of more significance is the fuel consumed by a locomotive per mile, which is also affected by the oil burning locomotives which I know nothing about. That is, if we used more coal per locomotive mile, then you would surely have the fireman shoveling more

coal for each locomotive mile operated. But if other fuel is used, as in the case of oil, I don't know what effect that would have on the firemen's work.

Mr. Sheean: But you also, from the tables you have here, have introduced and determined how many tons of coal per $1,000 compensation the fireman has been shoveling, haven't you?

Mr. Lauck: Oh, I could work that out.

Mr. Sheean: It is very easily worked out, is it not?

Mr. Lauck: Taking the same ratio?

Mr. Sheean: On your pages 7 and 9, you assemble there fifty-six representative railroads, and as I get it from your basic tables you do not show the same fifty-six, but you do show sixty-two railroads, and also ten railroads, which you say are representative.

Mr. Lauck: Which is that?

Mr. Sheean: The basic exhibit 20.

Mr. Lauck: At what page?

Mr. Sheean: At pages 34 and 35 you show the quantity, tons of coal consumed in 1890, 1900, 1909 and 1913, for 62 representative railroads, and at page 35 for ten Western railroads. Now, this exhibit, pages 7 and 9, shows fifty-six. But if we take either the sixty-two, Mr. Lauck, or the ten, at page 43 of this same exhibit, you show the same sixty-two railroads, do you not?

Mr. Lauck: 42 and 43?

Mr. Sheean: Yes.

Mr. Lauck: There may be some variation in numbers.

Mr. Sheean: No, the index shows—I am following the index, Mr. Lauck, and I have assumed that when you say sixty-two representative roads, that it is the same sixty-two roads. Following right through the index for sixty-two railroads and for ten railroads.

Mr. Lauck: Well, I would not like to—I don't know, but there may be some variations there, but assuming that is correct.

Mr. Sheean: Well, now, if you turn to the basic tables on page 34 or page 32, I guess, is shown the total tons—no, that is traffic units; 34. In the year 1909, the total tons of coal consumed shown at the bottom of the column on the sixty-two railroads was 41,150,057 tons. That was in 1909.

Mr. Lauck: Yes.

Mr. Sheean: Now, by turning to page 43, you find the same sixty-two railroads, do you not, and in the year 1909, for shoveling that number of tons of coal, the firemen were paid $21,096,955, were they not?

Mr. Lauck: That is right.

Mr. Sheean: So that if you divide the 41,000,000 tons of coal for which they were paid $21,000,000 in 1890, you arrive at the number of tons of coal that were shoveled per each dollar of compensation?

Mr. Lauck: Yes, if they handled all that coal. I will assume that.

Mr. Sheean: Well, if you do that, Mr. Lauck, you can do that readily, can you not, that would show that, on those sixty-two railroads, in 1909, that for every $1,000 paid firemen, 1,960 tons of coal were consumed?

Mr. Lauck: I have not divided it.

Mr. Sheean: Well, it is a mere matter of easy division, is it not?

Mr. Lauck: I will accept your figures. Yes, it is mere division.

Mr. Sheean: Taking the same roads, and going back again to the basic table at page 34, you find that on the same railroads, in the year 1915, there were 51,326,454 tons of coal consumed, while in that year 1913 the firemen were paid, as shown on page 43, $29,023,270; and if you again divide the number of million tons of coal by the number of millions of dollars paid for shoveling that coal, you arrive at the result that in 1913, for each $1,000 paid, there were 1,760 tons of coal consumed, or the railroads were having 200 tons less shoveled per $1,000 in the last period than they were in 1909.

Mr. Lauck: Well, if that is true, then I should say that all the railroad statistics are worthless; that is, if you show an increased coal consumption per locomotive mile.

Mr. Sheean: No, per $1,000 paid engineers and firemen. I am reducing it here to what you have reduced your tables here; you have shown how many ton miles per $1,000 of compensation; I have simply put the number of tons of coal per $1,000 of compensation, using your own way of distributing it; and if that mathematics and that mere division is correct for 1913, the railroad companies, for each $1,000 of compensation paid firemen,

were having 200 tons of coal less, shoveled. That could be brought about, could it not, by an increase in wages in that period?

Mr. Lauck: Yes, it could be that, but was all this coal shoveled by firemen, or is that true? Does not this represent coal consumed?

Mr. Sheean: Coal consumed, that is, locomotive coal consumption, is it not?

Mr. Lauck: That is what I have always understood it to be.

Mr. Sheean: Well, that is what it is, and that is what your tables are prepared for, on the theory, in each one of them, that this coal consumed is the coal consumed in locomotives, is it not?

Mr. Lauck: Suppose you would take the number of your firemen, and divide it into the coal, what result would you get then?

Mr. Sheean: I am perfectly willing that that should be done, except I understood you to say that the number of locomotive firemen, where you worked it out, was not satisfactory to you, as reported.

Mr. Lauck: Was not satisfactory as reported, no. I thought perhaps it would be satisfactory to you, and you would be willing to make the computation.

Mr. Sheean: Well, will it be agreeable to you, or will you take the responsibility of saying, that if we reduced to the number of firemen, as shown by the reports of the railroad companies on June 30th of each year, that that will be satisfactory to you, and in your judgment will properly reflect whether the increase in wages that has been granted, had been commensurate with the changed conditions?

Mr. Lauck: Well, I would not assume that, no sir. I don't think the number of figures is correct.

Mr. Sheean: Let me make that clear, Mr. Lauck—

Mr. Lauck: Because, right there, I would like to say something, Mr. Sheean. This coal consumed, if it is consumed for locomotive consumption, represents the total amount of coal that you have used in moving trains; but to that would have to be added all other fuel, would there not? There was a large percentage of oil. Then, if you add that to your coal consumption

and divide by your thousand dollars, you would probably get a different result, showing an increase.

Mr. Sheean: Are you willing that we should take the total fuel consumption as shown for the same 62 railroads, and the total pay roll to the engineers and firemen, to ascertain what the unit per $1,000 is?

Mr. Lauck: I think that would be more correct, yes, sir; in view of your locomotive miles, fuel consumption is better.

Mr. Sheean: Now, Mr. Lauck, the only way in which I could, from the basic tables—

Mr. Lauck: That does not appear in the basic tables, I do not think, fuel consumed. It may, but that is the basis of the locomotive miles, fuel consumption.

Mr. Sheean: Now, you have assembled also for ten western railroads here, on page 35 of your statistics, the same information of the quantity of tons of coal consumed by those ten western railroads during these periods?

Mr. Lauck: Yes.

Mr. Sheean: Now, if you take the total coal consumption of 1909 there, of approximately or a little over $22,000,000, there is shown, on page 46 of your basic table, what was paid to the engineers and firemen on the same roads, is there not?

Mr. Lauck: Yes, sir.

Mr. Sheean: Now, in 1909, it would appear from those two tables, Mr. Lauck, that on those ten western railroads, about 22,000,000 tons of coal were consumed, and that those western roads in 1909 paid to the firemen $11,030,838; or that on those ten western railroads, following your formula, for each $1,000 paid to firemen, about 2,000 tons of coal were consumed. Taking the same railroads for 1913, as shown on page 35, it would appear that 26,000,000 tons of coal were consumed on the same railroads and that on those railroads the pay roll of the firemen had increased, in 1913, from the $11,000,000 of 1909 to $14,585,-991; so that in 1913, on the ten western railroads selected, for each $1,000 paid firemen only 1,737 tons of coal were consumed, or per $1,000 of compensation, 273 less tons were consumed in the later period than in the earlier one.

Mr. Lauck: I think, to make that comparison accurate, or approximately so, you would have to take your coal burning locomotives. It would seem to me it would be a much better

comparison, and, knowing the mileage which they made, divide the mileage into the coal consumption; or, not knowing that, to add your other fuel to your coal, and then divide on the basis of wage outlays.

Mr. Sheean: Then, Mr. Lauck, statistically, is this coal consumed as you carry it out here, valuable for any purpose as indicative of any thing as to productive efficiency or not?

Mr. Lauck: It indicates the general tendency in coal consumption. If you have oil burning locomotives, and are paying men for operating oil burning locomotives, of course, to divide the money paid to coal-burning men, as well as money paid to men on oil-burning locomotives, is not indicative of anything which you have done.

Mr. Sheean: This tends to show an increase of coal consumption. The other shows a tendency to increased payments in the aggregate to engineers and firemen?

Mr. Lauck: Yes, all classes of firemen, on all classes of locomotives. You have added together your oil-locomotive firemen and your coal-burning locomotive firemen, and divided them into the coal used. To make the comparison adequate, you should take from your cost of firemen the amount of money paid firemen on oil-burning locomotives, and then divide that into your coal consumed, and you would probably have a different result.

Mr. Sheean: Well, you don't know whether that would or would not have a different result?

Mr. Lauck: I know with that small margin that there should be a different result, it seems to me, and also the fuel consumption per locomotive mile increasing so. That is, you—

Mr. Sheean: Well, Mr. Lauck, you say in your tables that there has been an increased compensation to firemen per locomotive mile,—in the text, I think. That is a fact, is it not, that there has been an increased compensation, both to engineers and firemen, per locomotive mile?

Mr. Lauck: As far as I know, yes.

Mr. Sheean: And an increased consumption per locomotive mile?

Mr. Lauck: Of fuel.

Mr. Sheean: Of fuel, and an increase in wages in this period?

Mr. Lauck: Exactly.

Mr. Sheean: So that, the whole question is, whether or not that increase has been commensurate with the increase, either in locomotive miles, in coal consumption, or in the other matters?

Mr. Lauck: Or in units produced, or in revenue produced. Now, I do not think—

Mr. Sheean: This makes no relation to revenue.

Mr. Lauck: No, not at all. That is the next series. But I do not think that division of yours is fair, Mr. Sheean—you are taking the coal consumed; any more than I would if I took both classes of firemen, and charged them against the freight traffic. You are taking the total coal consumed and charging that against the wages of the men who are running oil locomotives, and dividing it by the aggregate outlay.

Mr. Sheean: Now, Mr. Lauck, is there anything in the basic tables that you have given us, by which we can compare, or from which we can make any deduction as to whether or not the known increase in wages—the admitted increase in wages has commensurately progressed with the increased productivity? Can we compare the locomotive miles? Are you willing that that should be done? I thought from your tables that you said—

Mr. Lauck: I am willing to make any comparison if we have the facts to base it on. There you have not the facts. The reports of the Interstate Commerce Commission do not contain the facts as to coal consumption per $1,000 of outlay to engineers and firemen. That is, the total payroll covers all classes of firemen, whether on oil burning or coal burning locomotives.

Mr. Sheean: Well, are you willing we should take any of these roads that burn only coal, and make that compensation?

Mr. Lauck: I think that would be a fair compensation.

Mr. Sheean: Let me see if we can agree on how many of these roads in your 61 it would be fair to take the figures that you show on your basic tables to see whether or not the compensation per $1,000 has produced as many tons of coal consumption as it did. Can you tell, running down that list at page 34, which of the roads here would be entirely fair?

Mr. Lauck: I think someone else could tell that better than I could, not knowing the—

Mr. Sheean: Well, let us run them off and see if we can agree as to which ones are exclusively coal burners.

Mr. Lauck: I have a statement as to coal burning roads. I think in the table on tractive power, there are notes on the oil burning locomotives.

Mr. Sheean: Well, can you tell the page that would enable us to determine which one of these roads would fairly represent—

Mr. Lauck: Some of the reports of the Interstate Commerce Commission, Mr. Sheean, say—make mention of the fact that they have oil burners. Other roads which are known to have oil burners, do not make any mention of it, and I have been unable to determine, for that reason. There may be oil burners on a road—that is what I have been told by practical men, that this road operates a great many oil burners, but there is no indication in the report. The note has been omitted, or something of that kind. But if any one through actual practice knows of a coal-burning road that burns coal exclusively, I would be perfectly willing to accept that road.

Mr. Sheean: Or a group of roads which burn coal exclusively?

Mr. Lauck: Yes.

Mr. Phillips: If I may interrupt, Mr. Chairman, perhaps Mr. Sheean and I can draw your attention to the exhibit in which this will be found. It is Exhibit No. 4, and on page IV will be found a list of the roads, I would say twenty or twenty-five in number, which burn a considerable part of oil. That is a considerable number of their engines burn oil.

Mr. Sheean: I think from what Mr. Lauck says, he would want to exclude those that burn any oil at all, and I would assume that I can obtain here a list of representative roads shown in this table. I would have to resort to his own table for the purpose of the figures.

Mr. Lauck: As I say about that, the oil-burning locomotive has troubled me all through the compilation of these statistics. That is, I have been unable to determine—that is, the fuel consumed per locomotive mile, I attempted to, if I could, eliminate the oil or get down to the actual amount of arduous work by the firemen—the increase in it, and I find, from the statistics, that every time I try something I am encountered with the difficulty growing out of the inability to decide whether it is coal or

whether they have oil-burning locomotives or not, from the reports of the Interstate Commerce Commission.

Mr. Sheean: Of course, to make a comparison, Mr. Lauck, from one period to the other of what is paid, measured either in terms of ton miles or in terms of tons of coal, you must also, or should also, in order to make a fair comparison, have some knowledge as to whether there have been any changes in that period with reference to the method or manner in which the work has been performed, the instrumentality by which it has been performed.

Mr. Lauck: Should give due allowance to that, yes, sir.

Mr. Sheean: And I assume, of course, there are no data accessible to you, from which you have attempted, through any of these long year periods, to ascertain and determine whether with the coming in of larger power there has been any relief given in the way of certain labor, that in times past had been performed by firemen, and was no longer being performed by them?

Mr. Lauck: I have no way of ascertaining that at all.

Mr. Sheean: Nor have you any knowledge at all as to any change through this long period from 1890, with reference to the taking off of certain burdens, cleaning the head lights, sweeping the decks, putting on the supplies, breaking the coal to proper size, installations of sloping tanks, automatic doors, automatic stokers, automatic shakers, or any of those things at all?

Mr. Lauck: I know absolutely nothing about those.

Mr. Sheean: There might be, of course, either compensation by relief from work, or compensation by money payments commensurate with the added work.

Mr. Lauck: I know nothing about them. There might be—

Mr. Sheean: And of course, too, with reference to the added work on a larger engine, if in fact a better quality of coal was provided in the later time, the fireman conceivably might handle the larger engine with actually less coal, or an equal amount of coal than he was shoveling on a smaller engine of a poorer quality of coal?

Mr. Lauck: Hypothetically, that should be true. As I say, —I do not mean to evade the question at all, but I know absolutely nothing about those things.

Mr. Sheean: On page 9 of this exhibit 24, Mr. Lauck, ex-

cept the ton miles per $1,000 compensation to freight engineers, is there any other of the units that you have used there that would show any increase per $1,000 of compensation?

Mr. Lauck: Not per $1,000 of compensation, although, as I hold all the way through, the tendency is evident from the trainload; but so far as applying it absolutely in terms of dollars and cents to firemen, that is the only basis that I have there for showing increased productivity in terms of outlay.

Mr. Sheean: Well, having made a division between freight engineers and freight firemen on your way of making computation, I suppose all that were left would have to be passenger engineers and passenger firemen?

Mr. Lauck: If I put in all engineers, I am charging switching men against the revenue tonnage, and to that extent decrease the showing that otherwise might be more favorable to me.

Mr. Sheean: Yes. Well, now, isn't there another element that would enter into this charging up of this switching. Under the rules of the Interstate Commerce Commission, the switching is charged at the rate of 6 miles per hour, is it not in the locomotive mileage?

Mr. Lauck: I think so, yes, sir.

Mr. Sheean: Six miles per hour. So that a day of ten hours is only accounted as sixty miles in switching service. So that if you reduce it to a mileage basis, the cost per mile of switching is considerably higher than in any other kind of service, is it not?

Mr. Lauck: It would be, yes, sir, except—it would have to be a very slow freight service that would be any higher than that, sixty miles a day.

Mr. Sheean: Therefore, if in fact you have distributed more to the passenger in the switching than is proper in actual operation, you would be burdening the passenger service with more than its share of the expenditures because of switch engineers and switch firemen?

Mr. Lauck: That is true. That is something I cannot avoid, though.

Mr. Sheean: Well, you could Mr. —

Mr. Lauck: If I knew the switch engineers cost, I could eliminate it entirely, just as if I knew the cost paid these en-

gineers for handling company material, which is 20 per cent, as I understand it, of the total traffic.

Mr. Sheean: Or just if you knew the actual number of freight engineers and the actual number of passenger engineers?

Mr. Lauck: Yes, if I knew I could work it out more.

Mr. Sheean: But in your deduction, having deduced that a certain number on freight engineers, if you carried out for passenger engineers and passenger firemen your same formula, it would show a decreased efficiency in passenger service?

Mr. Lauck: I think it probably would. I haven't worked it out. But the increased work would still be there, owing to the heavier train and the larger tractive power. But, as I say, the railroads have not been able to get the units in the train. That is, if the Pennsylvania runs a 20-hour train from here to New York and has not a passenger in the train, it would show a decreasing productive efficiency for the locomotive engineers and firemen, but something for which they were not responsible at all, it seems to me. They do the work, or did increased work, but the train did not develop traffic.

Mr. Sheean: Well, now then, taking that to be the situation here, if the fact that these trains are not—the traffic has not been developed here, and therefore the productive efficiency has not been reduced, the pay of the engineers and firemen should not bear any part of that burden, as I understand you.

Mr. Lauck: The pay should not bear the burden? I don't just understand you.

Mr. Sheean: Well, I was wondering, Mr. Lauck, if there might be a change in the showing of the productive efficiency of the passenger engineers and firemen, due entirely to the ability to get more passengers per train, why it is not also possible that the increased efficiency which you show in freight might not be due entirely to the ability of traffic managers to get freight traffic.

Mr. Lauck: I think it would be. That is, if they had not developed the heavier train load. You have got the heavier train load in freight traffic, but, as I said a while back, if you would run your train over the road empty, which would be equivalent in gross train tonnage to the revenue ton train, you would pay your engineer and fireman for hauling that over the road,

but in the output of the road there would be no number of train miles at all.

Mr. Sheean: So that it is possible that the efficiency of the 5 per cent shown to freight engineers, may be due entirely to the ability of the traffic managers to get more traffic in the later period than they did in the earlier period.

Mr. Lauck: I think—it would not be due to that.

Mr. Sheean: Well, the equalization of traffic.

Mr. Lauck: Because they might get the traffic and not handle it as economically as they did in the past. Just assume that—you might increase your traffic but not increase your operating efficiency: I think the fundamental thing is the operating manager getting more traffic over the road with fewer train miles.

Mr. Sheean: But, without any distribution on this first table, it might be that this increase—whatever it is—was due entirely to a better equalization of traffic?

Mr. Lauck: Oh, you mean by that—that term equalization, does it mean getting empties back and forth?

Mr. Sheean: Yes, having it move in both directions.

Mr. Lauck: It might be due to that, yes.

Mr. Sheean: And it might be due solely to that?

Mr. Lauck: Yes. Then you would have a heavier train going the other way, would you not, which would make the engineers and firemen incur as much responsibility and work as in moving the tonnage. It would all come around to the same thing, if by economical or efficient management you have gotten more traffic over the road with fewer revenue train miles.

Mr. Sheean: That is what I am trying to get at, Mr. Lauck, whether in the end or in the last analysis, your table shown on here, 23, is simply that the plant as a plant in the latter period, has operated more efficiently than it was operated in the earlier period. That is, more economically.

Mr. Lauck: I think that it does undoubtedly show that, and as far as I am able to show by the statistics, it shows a distinct tendency toward increased output per daily outlay for locomotive engineers and firemen, which to my mind does not really show what increased productive efficiency is. That is, take this company freight. Granting all your criticisms about the distribution—and some of them are good, I think—it shows

an undue proportion, probably, on passenger traffic, and a corresponding decline in freight traffic, yet you have all your company tonnage to account for, and through the fact that I have charged all classes of engineers and firemen to this, why you would possibly have a greater tendency than I have indicated, although I cannot say anything definite about it.

Mr. Sheean: Mr. Lauck, do you mean by that that in a later period there is anything of which you have knowledge that would show that in the last period there was a greater proportion of company material than in the earlier period, or a less proportion?

Mr. Lauck: What I mean is, I am trying to show a tendency, and I think the tendency myself is greater than five per cent, although I cannot prove it in any way.

Mr. Sheean: And that five per cent, Mr. Lauck, is by virtue of the segregation of freight firemen?

Mr. Lauck: Freight firemen.

Mr. Sheean: You get, on this same page, for mileage used as to the remaining firemen, what the effect of passenger traffic is?

Mr. Lauck: Yes.

Mr. Sheean: And you feel sure that that would show, on this distribution, a decreasing efficiency in the last period?

Mr. Lauck: I have not done that, but I think very probably it would.

Mr. Byram: May I ask a question, Mr. Lauck?

Mr. Lauck: Yes, sir.

Mr. Byram: Might it not be that the difference in the increased productive efficiency in this period we are speaking of is less proportionately than it was in the earlier case, that the locomotives that haul this greater tonnage carry with them a higher rate of pay to the firemen and enginemen, so that their increased productive efficiency, by reason of hauling this larger train, is partly or wholly compensated by the higher rate of wages they get for using that engine?

Mr. Lauck: To the extent that it would be, it would be a decreasing productive efficiency.

Mr. Byram: It is a fact that the larger engines pay a higher rate; those larger engines, according to your theory, produce a greater number of ton miles; but in using the larger en-

gine to produce the greater number of ton miles, the fireman and engineer also receive a higher rate of pay on that engine?

Mr. Lauck: Yes.

Mr. Byram: And might it not be that the decrease of only five per cent in productive efficiency per $1,000 expended in this last period, as compared with a much greater percentage in the previous period, is due to the fact that these instrumentalities which produce a greater efficiency are already compensating the firemen by paying a higher rate of pay?

Mr. Lauck: To the extent that your wages would increase, that would be true, I think. Of course, the point that I am holding is that all the productive efficiency prior to 1909 was not absorbed in the 1909 adjustment, which you probably might not hold with me, but that would be my point of view.

Mr. Byram: But, considering the three periods separately, for which you have made these computations, and the last period being included in the first two, the relative increase in productive efficiency is much less in the last five years than it was in the previous years, according to your tables?

Mr. Lauck: Yes, taking the last period and segregating it from all other periods, there is a more pronounced tendency, as exemplified by these figures I have here, for the outlay for cost of locomotive firemen and engineers to creep up on the increased output of the engine. But—

Mr. Byram: You may not know, but all railroad men do know, that the large engines which produce this efficiency carry with them a higher rate of pay as they increase in size.

Mr. Lauck: I have understood that, yes, sir.

Mr. Byram: And if that is so, that might be one of the explanations why this increase was not greater, because the compensation to the fireman is already added when the larger engine is used.

Mr. Lauck: I think that would have that tendency, but against that I would have to hold that the previous productive efficiency had not been absorbed.

Mr. Byram: I appreciate that. Now, you have used, in this case, the $1,000 payment to enginemen, or, rather, the aggregate payment to enginemen, for their daily service, as produced in ton miles?

Mr. Lauck: Yes.

Mr. Byram: Now, what would be the effect of a case where an engine crew, starting on a trip of 100 miles, was unable to complete that trip, by reason of a disabled engine, we will say, half way over the road, and another engine and crew were necessary to take that engine to its original destination, 100 miles away; what would be the effect on the productive efficiency of those two crews in that instance?

Mr. Lauck: It would depend on how they are paid.

Mr. Byram: Assuming they are both paid a full day's pay, which would be necessary.

Mr. Lauck: That would decrease the productive efficiency, because you would have an increased labor cost against your ton mileage for that division, or whatever it might be.

Mr. Byram: If the same situation prevailed on a busy railroad, where ten trains had their trips interrupted on the same railroad, by reason of a wash-out, we will say, and it was necessary to dismiss those first ten crews that started with those trains, and put on ten other crews to finish the trip, for which both sets of ten crews were paid 100 miles, as it would be necessary to do, under existing rules, would that decrease the productive efficiency of those ten crews for that day?

Mr. Lauck: Yes, everything you do to add to the outlay in comparison with the traffic moved would decrease the efficiency.

Mr. Byram: If there was a rule or practice prevailing on these railroads that had the same effect, that is, of making it necessary for the company to increase the outlay for a given service by using two crews instead of one to perform that service, would that tend to reduce the productive efficiency of those men in the same way?

Mr. Lauck: On the same train?

Mr. Byram: Yes.

Mr. Lauck: With the same train load?

Mr. Byram: Yes, the same service.

Mr. Lauck: That would, yes.

Mr. Byram: Anything that tends to prevent the railroad companies from utilizing the services of an engine crew for a full day, for which it is paid, tends to reduce their productive efficiency?

Mr. Lauck: If you do not add to the requirements of that added labor cost, that is, if—I am assuming all the time now

that you mean the same train, the same train load and the same mileage. Of course, if you would increase the train load and put two crews on the train, then you might increase your productive efficiency by having two engines hauling proportionately a greater train; but the train load remaining the same, and the labor cost or outlay for engineers and firemen for getting that train over the road increasing, through a circumstance of this kind, it would decrease the productive efficiency of the men.

Mr. Byram: Then, for instance, if among these rules that these enginemen are asking this Board to grant, there should be a rule that would have the result, in its operations, of reducing the productive efficiency of these men in the same manner that we have described here, it would be contrary in its effect to the request for increased pay on account of productive efficiency. In other words, here the men are, and you in their behalf, are asking this Board to grant increased rates of pay to engineers and firemen on these railroads because of their increased productive efficiency in the past.

Mr. Lauck: Yes.

Mr. Byram: Now, if any of the rules that they are also asking for had the effect, in their operation, of producing the same decrease in productive efficiency as we have described in these instances, the two situations would be contrary to each other; that is, the men would be asking for increased pay for their productive efficiency in the past, and at the same time would be asking for rules which prevented that productive efficiency in the future.

Mr. Lauck: Yes, other things being equal, all the circumstances, that there were not any additional requirements or anything of that kind, one would neutralize the other.

Mr. Byram: Anything which would increase the cost of performing the service of moving the train over the railroad would tend to decrease the productive efficiency of this plant?

Mr. Lauck: In terms of outlay for locomotive engineers and firemen.

Mr. Byram: Yes, and you are basing your figures on that.

Mr. Lauck: Yes, I admit that.

Mr. Byram: That is all.

Mr. Stone: Mr. Chairman, might I ask Mr. Byram one question, if it be allowed by counsel for the defense?

Mr. Sheean: I have no objection.

Mr. Stone: Do I understand that you pay crews in accordance with those hypothetical questions you have put to Mr. Lauck, on the Burlington, at the present time?

Mr. Byram: We pay them according to the first question, yes. Where a crew starts out from one terminal to run 100 miles, and the engine is disabled and it is impossible to finish the run and another crew is put on, we pay the two crews one day's pay for moving that train from one terminal to another.

Mr. Stone: You are quite sure of that?

Mr. Byram: Yes.

Mr. Stone: That is all.

Mr. Park: Have you made any deductions to show that there has been a change in the pre-existing ratio between the fireman and engineer?

Mr. Lauck: No, sir, I have not.

Mr. Park: That is, if the firemen's ratio has increased.

Mr. Lauck: No, I have not looked into that at all. You mean the ratio of the outlay or cost of firemen to engineers?

Mr. Park: Yes.

Mr. Lauck: No, I have not looked into that.

Mr. Sheean: Mr. Lauck, all of these tables for these railroads being comparative, there must be some starting point, I assume, at which the adjustment of the wages of engineers and firemen is in proper proportion to the productivity of the plant as a whole?

Mr. Lauck: Well, I never have considered that point.

Mr. Sheean: I was wondering how, without any base from which to start, you say that back of 1909 you are assuming that they did not get enough in 1909 to take up their increased productivity.

Mr. Lauck: I am comparing it on the statement of the immense gains in productivity of the plant.

Mr. Sheean: The immense gains in productivity of the plant?

Mr. Lauck: And the men, as shown by the $1,000 outlay, and also by the extraordinary increase, as would be indicated in the amount of work to be done.

Mr. Sheean: Taking this one we had here, this road, the M. K. & T., was it, that was hauling 44 tons to the train

back at one of your starting points, and they have gotten up to 170 tons now, and are hauling five or six cars instead of one to a train; there must be some little slack to be taken up in that operation before the engineers and firemen are to get credit or additional pay, must there not?

Mr. Lauck: Well, the tendency would be indicated by the returns in terms of outlay for the locomotive engineers and firemen.

Mr. Sheean: Are you assuming—

Mr. Lauck: What I would say is that I am not assuming any basis of right payment to start with. I guess I am reflecting the attitude of the men, that nothing has ever been satisfactorily adjusted; but I have never considered any basis as an equitable starting point. I made the statement to Mr. Byram that the productivity prior to 1909 had not been taken up, which seems conclusive to my mind, by the tendencies exhibited by the outlays for locomotive engineers and firemen, as in comparison with the work performed and the returns to the railroad.

Mr. Sheean: On that one railroad that showed this long line, because they had increased 400 per cent in efficiency, they were carrying 44 tons to the train back in an earlier period and were carrying 170 tons to the train now, is there anything to indicate there, on that sort of a showing, that an increase in loading such as that would justify an increase in the wages of engineers and firemen unless you assume that the adjustment bore some relationship of equity at the starting point?

Mr. Lauck: I do not assume—I think probably I have not made my point of view exactly clear yet—I do not assume that the wages of locomotive engineers and firemen should bear a direct relation to the increased per cent of productivity that I show, that is, whether it is 400, 5, 15 or 20 or whatever it may be. What I am trying to do is to establish the principle of increased productivity as a justification for increased wage payments. Then, whenever the adjustment would be made, which I would be incapable of making, because I do not know the working conditions, all those things would have to be taken into consideration. I simply want to establish the principle of the increased productivity of the plant and the increased output of the men and the increased work. Further than that, I cannot go, or can only say this is the tendency, as exemplified by these statistics.

But any adjustment of wage payments or rates of pay upon this basis, would have to take into consideration all the factors which have been spoken of here, any offsetting circumstances in the way of lessened work or any effect of working rules or increased wage payments in certain respects, all I am trying to do is to establish this tendency as a justification for increased wages, without any regard to the amount of wages to be paid.

Mr. Sheean: Is that tendency, which you speak of so frequently, merely that the railroads are now operating more economically from year to year than they were in years past?

Mr. Lauck: More economically in terms of locomotive engineers and firemen, and that the work of the firemen, so far as I can judge by fuel consumed per locomotive mile, has increased.

Mr. Sheean: And the pay per locomotive mile of the fireman has increased at a greater ratio than the coal consumption per locomotive mile?

Mr. Lauck: Well, that is according to your computation, which I did not accept—

Mr. Sheean: No, no, to take it even your other way, if you are going to reduce it to the locomotive mile basis?

Mr. Lauck: My point is this: We had it up the other day; I think Mr. Byram and I were talking of it; the percentage increase there is not significant to me. The point is, what is the cost per unit of output, in terms of locomotive engineers and firemen, and what do you get in return, what does it cost you per train mile, what do you get per train mile, and what does it cost per ton? In other words, as I said then, if I were running the plant, or you and I were general managers, it does not seem to me it would mean anything, say, if the statistician of the railroad came to us and said the locomotive mileage cost has gone up 40 per cent and the fuel consumption has gone up 30 per cent. What I would want to know is what we were getting for that in terms of what we sold the public?

Mr. Sheean: Yes. And you would also want to know, in terms of dollars what you would get, wouldn't you?

Mr. Lauck: Yes, in dollars.

Mr. Sheean: Now, then, are you willing to put this on the basis of revenue miles?

Mr. Lauck: What?

Mr. Sheean: Of the revenue per mile, or the revenue per locomotive mile?

Mr. Lauck: I have already put it on that basis in my exhibits you will recall, that is per locomotive. I put it on the train mile but not on the locomotive mile.

Mr. Sheean: Have you put it on the dollars or money per locomotive mile?

Mr. Lauck: That is the revenue per locomotive mile? No, I put it on the train mile.

Mr. Sheean: On the train mile?

Mr. Lauck: Because the locomotive train mile is the best unit, of course, I think, because you may have two locomotives on a train.

Mr. Sheean: And we have to pay the engineer and fireman on each of these locomotives, do we not?

Mr. Lauck: Yes, and get more for what they do, out of the trains.

Mr. Sheean: Precisely, but in ascertaining what it is costing the railroad company, in terms of engineers and firemen, that must include the wages of engineers and firemen on both locomotives?

Mr. Lauck: Oh, yes, undoubtedly. That is part of the train mile cost.

Mr. Sheean: There has been, as you say, an increase in the cost per train mile?

Mr. Lauck: Oh, undoubtedly, yes.

Mr. Sheean: There has been an increased cost per locomotive mile?

Mr. Lauck: Undoubtedly, yes.

Mr. Sheean: There has been an increase in cost per locomotive mile, measured in wages of engineers and firemen?

Mr. Lauck: Yes, that is true.

Mr. Sheean: There has been an increase in cost of locomotive engineers and firemen per train mile?

Mr. Lauck: Undoubtedly, yes.

Mr. Sheean: But you say it is not fair to deal in terms of percentages there—it costs the railroad company—

Mr. Lauck: I say the dollar is fair.

Mr. Sheean: What is it?

Mr. Lauck: I say the dollar is fair.

Mr. Sheean: Let me see. In operating a locomotive that cost $6,000 and operating one that cost $20,000, there is some difference in the contribution of capital, is there not?

Mr. Lauck: Undoubtedly.

Mr. Sheean: Undoubtedly?

Mr. Lauck: Yes. The higher capital cost for this more highly developed, big locomotive, on which there is a revenue gain, the revenue gain ought to absorb that and ought to absorb the locomotive engineers' and firemen's cost, and, it is our endeavor to show, leave a net return.

Mr. Sheean: Is the return per locomotive mile expressed in revenue per locomotive mile, is the gain any greater proportionately, or is it any less, expressed in ratio or percentage, than the gain expressed in engineers and firemen?

Mr. Lauck: I really don't know. I haven't looked into that. It may be less. Still, being less, I would hold to the original point that it is what revenues you get from your locomotive mile, due to your heavier train load and the revenue it produces —there you have another offsetting factor that works to the disadvantage of engineers and firemen, as well as the railroads, in making a comparison, because you have a tendency to a less freight rate per ton mile, and multiplying that less freight rate per ton mile by the number of tons in the train, you have less revenue, after increasing your train load, which works to the disadvantage of all parties concerned, firemen and engineers, and the railroad as a whole.

Mr. Sheean: Well, it is certainly clear, is it not, Mr. Lauck, that the proportionate part of the ton mile compensation that the engineers and firemen have taken from year to year, has been greater through this period?

Mr. Lauck: That is looking into the cost per ton mile, whether other costs have not been reduced more than engineers and firemen?

Mr. Sheean: Yes.

Mr. Lauck: I don't know about that. There has been a distinct gain in cost, but how far—

Mr. Sheean: That is, a reduction in costs?

Mr. Lauck: Yes, for the roads, in terms of engineers and firemen, per ton mile, as there must have been in all costs, otherwise the railroads would not be running concerns at the present

time. I mean, if operating efficiency did not offset the reduction in the freight rate and the added outlays for labor and material, and so on, through more efficient operation, or more productive efficiency of the plant itself, you would have been running at a loss, would you not? How far the different factors are related to each other, I don't know. I know the locomotive engineers and firemen have had distinct reductions in ton mile costs.

Mr. Sheean: And an increase in ton mile compensation?

Mr. Lauck: I don't know about that. I haven't worked that out.

Mr. Sheean: Now, Mr. Lauck, if you will turn to page 8 of this exhibit No. 23, please; in the text you say, referring to the last paragraph:

"Freight train, freight locomotive and total revenue train mileage have not increased proportionately with other factors and especially with the number of engineers and firemen."

Now, is there anything in your statistics at all that refers to the number of engineers and firemen?

Mr. Lauck: No, that should not be considered as having been proved by the statistics. That is an observation I made, which I have no doubt is true, but it is not shown to be true in the exhibit.

Mr. Sheean: Well, Mr. Lauck, we have heard here, for several days, about the decreasing number of engineers and firemen.

Mr. Lauck: Not in comparison with the traffic moved?

Mr. Sheean: No. As I remember it, the trend of certain testimony has been that the absolute number of engineers and firemen has decreased.

Mr. Lauck: You don't mean my testimony?

Mr. Sheean: No, the testimony of lay witnesses, that the number has been growing less and less. Now, if I understand this statement here, your observation would be that while this total payroll has grown very much larger from year to year, and in a greater proportion than tons of coal or traffic units—

Mr. Lauck: I say that may be true—I don't know—it may be true. I don't believe I stated that. It may be true. If it is true—if you state that, I will accept your statement.

Mr. Sheean: I don't mean to interject anything as a statement: I was merely inquiring if it was a fact.

Mr. Lauck: I appreciate that.

Mr. Sheean: I don't want you to give a cent for anything that I may say as indicating an opinion on my part.

Mr. Lauck: I haven't worked that out. I haven't worked the percentage of relative increases out, as to whether ton mileage—locomotive costs have increased more than ton mileage or not; but saying that, whatever the case may be, whether it be an increase or a decrease, why, my point is, that it has no significance.

Mr. Sheean: Well, this one sentence here, Mr. Lauck, as I understand it, would mean that, although the total pay roll, as shown by these reports, has very much increased in this period of time, nevertheless, there are a greater number of men to divide that total pay roll.

Mr. Lauck: No, I did not mean to make any statement of that kind.

Mr. Sheean: (Reading:)

"Freight train, freight locomotive and total revenue train mileage have not increased proportionately with other factors, and especially with the number of engineers and firemen."

Mr. Lauck: Well, the observation there was that traffic, as exemplified by ton miles, has increased proportionately more than the number of firemen, and that each fireman or engineer would therefore be handling proportionately a larger amount of traffic, due to the fact that he was on a heavier locomotive and handling a heavier train load, with fewer train miles, than before.

Mr. Sheean: But, if you will read the whole of that sentence,—"owing to their inability to stand greater physical strains and responsibilities of the development of the railroad in operating performance." Does not the sentence, as a whole, mean that there are a greater number of engineers dividing the total pay roll?

Mr. Lauck: No. If it does mean that, there was not any intention of making it mean that. It means that, although the number of engineers may have increased, and of firemen may have increased, the gain in traffic has been proportionately much greater, and this traffic has been moved with fewer engines, fewer

train loads, fewer train miles, therefore, and that the earning capacity of the individual engineer and fireman—the ability to earn at higher rates of pay—has declined, because it takes him longer to make—assuming that it is not offset by the payroll—it takes him longer to make a freight train mile than formerly, and when he does it, even though at higher rates of pay, he makes it in slower time and with a greater output.

Mr. Sheean: Right in that connection, Mr. Lauck, having reduced this distribution to a revenue train mile basis, anything that went into the payroll of the engineers and firemen as overtime, because of a less speed than ten miles per hour, would show a decreased efficiency, wouldn't it?

Mr. Lauck: If it were not offset by an increased trainload. As I understand it, the fact that they make such slow time is due to the heavy load which takes them a long time to get over the road. If you require ten hours or longer to get over the road, evidently the owners must think that it is more economical than running a lighter train at the faster time.

Mr. Sheean: Reducing it in the distribution to revenue train miles, you consider only the element of miles, do you not?

Mr. Lauck: Revenue train miles, yes.

Mr. Sheean: And, miles being the basis, anything that makes the cost per mile greater shows a decreased efficiency?

Mr. Lauck: If it is not offset by heavier trainloads. Just as Mr. Byram and I were discussing the thing, he had two crews going out, as he stated the case, and did not increase his trainload at all, but he added to the cost. There you would have a decreased efficiency, in terms of return, but if you reduced your load and increased the requirements, and then have an added cost, you may have increased output which would far outweigh the added cost.

Mr. Sheean: Well, in all of that, however, Mr. Lauck, you are again making your basis of distribution to freight and passenger on merely the revenue train miles?

Mr. Lauck: Yes.

Mr. Sheean: And you are, in that distribution, distributing as the cost whatever the cost is of overtime to passenger, on whatever basis the total revenue miles, as between freight and passenger, bear to each other?

Mr. Lauck: Yes.

Mr. Sheean: And putting that over as costing them to operate their passenger trains, whatever proportion of overtime is paid in the relationship that revenue train miles bears, in the one case, to the other.

Mr. Lauck: I have to do that. It would be better not to do that. It shows more to the disadvantage of passenger and more to the advantage of freight traffic. I cannot do anything else. I freely concede that.

Mr. Sheean: Now, Mr. Lauck, that sentence again. Let me see if I understand that: "Freight train, freight locomotive and total revenue train mileage have not increased proportionately with other factors, and especially with the number of engineers and firemen."

Mr. Lauck: "Other factors" means there the passenger miles and the ton mileage.

Mr. Sheean (reading: "—and especially with the number of engineers and firemen." Now, does that imply or indicate that there has been an increase in the number of engineers and firemen more rapid than the increase in these other things?

Mr. Lauck: What I mean to convey there is—it is confusing,—that the number of engineers and firemen has not increased proportionately with ton mileage and passenger miles.

Mr. Sheean: I read it as stating it the other way around, that "freight train, freight locomotive, and total revenue train mileage have not increased proportionately with other factors, and especially with the number of engineers and firemen."

Mr. Lauck: To be stated in the way I meant it, it should be that the engineers and firemen have not increased proportionately with these other factors also. That is, there may be more engineers and firemen on a freight train than before, whereas, you may have today one fireman and one engineer on a train, if you increase that trainload you may have two engineers and two firemen on the train now, as compared with the past, owing to the increase in the trainload and comparing the total number with the increase in traffic, you have not, comparatively, the same increase in engineers and firemen as in the volume of traffic moved. That is, they are moving more traffic per man.

Mr. Sheean: That same sentence still. The total pay to engineers and firemen has increased?

Mr. Lauck: The total outlay, yes.

Mr. Sheean: The total outlay to engineers and firemen; that has increased per freight train, has it not?

Mr. Lauck: Per freight train mile—revenue freight train mile?

Mr. Sheean: Per freight locomotive mile?

Mr. Lauck: Yes.

Mr. Sheean: Per revenue train mile?

Mr. Lauck: Yes.

Mr. Sheean: There has been an increase in the payments to engineers and firemen under each and every one of these units?

Mr. Lauck: Considered as a class. Not as a man, but as a class.

Mr. Sheean: As a class?

Mr. Lauck: Yes.

Mr. Sheean: Therefore, if there has been an increase, considered collectively, in each of these units, can you arrive at the deduction here stated in the second part, in any way, except, upon the assumption that there is a greater number of men to divide those units, in order to bring about a decrease per man?

Mr. Lauck: Oh, I see what your point is. You seem to think that I want to show that there is a decreased outlay per man?

Mr. Sheean: Yes.

Mr. Lauck: No, no. I think there is an increased outlay per man, but the revenue gain per man has been greater.

Mr. Sheean: But, not stated proportionately, not reducing it to the per ton mile, the pay, the compensation per man per ton mile is greater than it was?

Mr. Lauck: I haven't worked that out.

Mr. Sheean: You do know the compensation, collectively, is greater per revenue train mile?

Mr. Lauck: The compensation per train mile has increased. Then, I have already shown, I think I remember, for one period, 2.2 cents, in 1900, I think it was, greater cost of locomotive engineers and firemen per ton mile; but my contention all along is that the revenue gains per train mile, per man, per locomotive mile, have been sufficient to pay these added costs and leave a net return. Now, whether or not in the case of a ton mile

the decrease per man has been greater than the decreased receipts, I don't know. I haven't taken it on that basis.

Mr. Sheean: And your effort has been, Mr. Lauck, to not show anything more than that all the efficiency or all of the economy, whatever it is in this time, is more than enough to more than pay all the additional payments which have already been made to the engineers and firemen, and that we still have something left for other labor and for capital.

Mr. Lauck: My effort has been to show, taking the revenue train mile, which is the real unit of cost, that the revenue gain has been sufficient to offset all added costs and leave a net return. Then, in the concluding exhibit, I attempted to show that revenue which was left was sufficient to pay the added capital costs on these high grade machines and the grade reductions, and so on, and leave some indefinite amount available for labor.

Mr. Sheean: That, we are coming to, later. I mean on this exhibit—I wanted to be sure I had clearly in mind these exhibits 21, 22 and 23; that so far as this exhibit is concerned, you are treating the plant as a plant that, within these periods, without showing that operating efficiency was 50 per cent, or 60 per cent, or 100 per cent, at any particular period—that there has been improvement through various periods, and that during the last five-year period, whether you call it economy or efficiency, there has been comparatively little change in the last five-year period?

Mr. Lauck: As indicated by these figures. Then reserving the right to claim that, prior to 1909, as judged from the remarkable gains prior to that time, there had not been a participation equitably in the results, by the men.

Mr. Sheean: Or the other thing, uneconomical operation?

Mr. Lauck: Yes.

Mr. Sheean: Comparatively?

Mr. Lauck: Yes.

Mr. Sheean: You know some people have suggested—I presume you know, Mr. Lauck—Mr. Brandeis, for instance—that there has not been sufficient economy in operation, particularly during these periods?

Mr. Lauck: Yes.

Mr. Sheean: And it might be, during this period, all that

this result would show would be that there was not sufficient economy at certain periods, or sufficient efficiency in operation?

Mr. Lauck: I think your efficiency in operation is demonstrated by your handling the traffic with fewer train miles.

Mr. Sheean: It has increased?

Mr. Lauck: Yes.

Mr. Sheean: The one point I am attempting to make, and I think you stated it frankly, that you have in no table shown that there has been a greater relationship between the contribution of one factor or another, but have shown the comparative progress made?

Mr. Lauck: In operating efficiency, and I have tried to relate it to the locomotive engineers and firemen, the principle of payment, not as a saying, "This is what they should get," or what anything should get.

The Chairman: We will take a recess until 2:30 o'clock.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

W. JETT LAUCK was recalled for further examination, and, having been previously sworn, testified as follows:

Mr. Sheean: On page 5 of Exhibit 23, Mr. Lauck, I think you said this morning that if the traffic units were reduced to the same terms as the last two lines on that exhibit, "Traffic units per $1,000 of compensation to engineers and firemen," that from the tables you would judge that there would be a less number of traffic units given to the railroads for each $1,000 of compensation.

Mr. Lauck: But still a heavier train a man would have to haul?

Mr. Sheean: Yes. So, also, if you carry it out in terms of dollars paid engineers and firemen, there would be for each $1,000 paid engineers and firemen, less freight train miles in this period. That must be from the known fact that we are paying more money now—

Mr. Lauck: That is true, because you reduced your mileage for each volume of traffic.

Mr. Sheean: It must be true, even though everything else

remained the same, because of the fact that a known increase in wages is covered in these tables. Either one or both of those would co-operate to that result, and each one might be sufficient of itself.

Mr. Lauck: Yes.

Mr. Sheean: So if you reduce it to the terms of the number of passenger train miles per $1,000 of compensation, the engineers and firemen in this period are delivering a fewer number of passenger train miles per $1,000 of compensation.

Mr. Lauck: That is true, yes.

Mr. Sheean: And if you combine the two and put it "per revenue train miles" for each $1,000 paid out for engineers and firemen, they are delivering less revenue train miles.

Mr. Lauck: It would be a distinct advantage to the railroads in greater revenue per train mile.

Mr. Sheean: Well, now, from what table do you deduce the conclusion that per revenue train mile they are receiving more in 1913 than they were in 1909?

Mr. Lauck: I think I have a table—I don't know whether I have or not, "Revenue per Revenue Train Mile." I thought I showed that in one of the succeeding exhibits showing the revenue gain per revenue train mile as compared with increased costs of engineers and firemen. That is under one of those exhibits entitled "Revenue Gain."

Mr. Sheean: We will come to all of those, Mr. Lauck.

Mr. Lauck: On the passenger mile it might be less.

Mr. Sheean: Treating it on the basis of revenue train miles for each $1,000 paid engineers and firemen, they are now delivering fewer train miles than they did in 1909?

Mr. Lauck: Yes. By virtue of the necessity that the train load has been increased.

Mr. Sheean: Or by virtue of the necessity that the increased wages have more than offset the increase. Either one or the other may be sufficient for it. We have two known factors. The fact that the load has increased, and we have the known fact that wages have also increased.

Mr. Lauck: I think the fundamental factor, though, is the increase of the train load in the freight service.

Mr. Sheean: But, so far as these tables are concerned, there is no distinction made between the two, or nothing statis-

tical from which you can make any apportionment as to what part has been taken by increased wages and what part by increased train load.

Mr. Lauck: No, it is only the inference that, increasing the train load, you require, other things being equal, a less time to get over the road, or there has been an increase in payments to the men.

Mr. Sheean: And we know, Mr. Lauck, as I say, there is no dispute about the proposition, I take it, that those two features do exist.

Mr. Lauck: I won't take any exception to that.

Mr. Sheean: So, also, if you go to the basis of total train miles, whether revenue or non-revenue, the railroads now are paying—for each $1,000 that the railroads pay they are receiving a fewer number of train miles than they received in 1909. That is also true?

Mr. Lauck: Yes.

Mr. Sheean: And for each $1,000 that they are now paying they are paying a fewer number of freight locomotive miles?

Mr. Lauck: That is correct, I think.

Mr. Sheean: And for each $1,000 they are now paying they are receiving a fewer number of miles, revenue or non-revenue, locomotive miles?

Mr. Lauck: That is correct.

Mr. Sheean: Now, Mr. Lauck, there has never been, so far as you know, any scale of wages fixed upon the basis of ton miles which are hauled by engineers and firemen?

Mr. Lauck: None that I know of, no, sir.

Mr. Sheean: And the engineers and firemen in their productivity produce locomotive miles, do they not, and their scale of wages is based upon the number of miles that the locomotive makes, whether it be hauling revenue or non-revenue, or any commerce?

Mr. Lauck: I think that is correct, yes, sir.

Mr. Sheean: Now, it is a fact, is it not, that for every $1,000 paid the engineers and firemen, they have been delivering a fewer number of locomotive miles in 1913 than in 1909?

Mr. Lauck: That is undoubtedly true, but of course they have been delivering with these locomotive miles, a much greater number of ton miles.

Mr. Sheean: And it is true that with the increased tractive effort, that the rates upon the heavier class of power are higher than upon the lower class of power?

Mr. Lauck: That is true, I think.

Mr. Sheean: And it is true that because of the fact that there have been higher wages paid when the higher power was operated, that it is possible, on a percentage basis, to make some approximation as to whether or not there has been a relative increase in the wages which bears some relation to the relative increase in the load?

Mr. Lauck: Well, that would bring up my fundamental contention that you should consider the ton mile, or the revenue gain, and whether or not you had one locomotive on the train or more than one locomotive. Of course, if you consider the rates by themselves, you want to assume you had a train load of one locomotive, otherwise you would have more than one engineer.

Mr. Sheean: I am not talking of the train mile, but on the per locomotive mile.

Mr. Lauck: Yes. The rate for locomotive engineers and firemen for a mile. Other things being equal, that would be the cost to the railroad in terms of locomotive engineers and firemen per mile; but if it takes a longer time, or if you have more than one engine crew on a train, of course you increase your locomotive mile cost.

Mr. Sheean: Yes, those factors must be considered, but in the deduction which can be made from those tables, it is impossible to set those up statistically, is it not?

Mr. Lauck: My locomotive mile costs are the total costs, not the rate per mile.

Mr. Sheean: I was not talking about other inferences or deductions, but simply as to the deductions which might be made from the facts which you have used in making up these tables.

Mr. Lauck: Yes. I just wanted to get that clear.

Mr. Sheean: From the facts made up in these tables, it does appear that on every other basis of operation, locomotive mile, freight locomotive mile, passenger locomotive mile, train mile, revenue and non-revenue mile, that for every $1,000 that the railroad has paid out or is paying out to engineers and firemen it is receiving a fewer number of those traffic units now than it did in 1909?

Mr. Lauck: That is true, I think. Of course, the fundamental contention I make is that those locomotive miles produced more revenue freight and therefore there was a gain which offset the added costs and therefore produced a greater net revenue.

Mr. Sheean: That, however, is not deducible from these tables, Exhibits 21, 22 and 23, because there is nothing as to revenue gains here, is there?

Mr. Lauck: Well, that will come up in the next three.

Mr. Sheean: I want to cover the first three and the point you make as to each of these.

Mr. Lauck: Of course, the inference is clear, from handling an added volume of traffic with fewer train miles, that there was a gain, if traffic rates continued as before.

Mr. Sheean: Yes, if traffic rates continued the same as before, but if the Commission or any other rate fixing body, in connection with the determination of what is a proper rate, demands and insists that economies in operation, to wit, both in car loading and in train loading should be made before any increase in rate could be given, and if, in fact, the revenue per ton mile or per passenger mile has been decreasing, then you would have to compare the decrease in revenue and make a proper allowance for that, in determining any basis fixed on the ton mile or passenger mile basis, would you not?

Mr. Lauck: Yes, so far as the ton mile or passenger mile is concerned, and, of course, if in your revenue train mile, you could not get enough return out of your train loading to offset the added costs, the theory would fall; but it has shown a distinct gain in revenue per revenue train mile in the next exhibits I have filed.

Mr. Sheean: Sticking to these exhibits, 21, 22 and 23, statistically, the only inference from that is that in all of these called traffic units other than the ton mile unit, there has been less delivered by the engineers and firemen for each dollar or each thousand dollars than there was in preceding years?

Mr. Lauck: Yes. This period shows a less gain than preceding periods.

Mr. Sheean: No, that was not my question.

Mr. Lauck: I did not get your question correctly, then.

Mr. Sheean: My question was whether, during this period, for each dollar or each thousand dollars paid by the companies

the engineers have, not relative but absolutely, delivered fewer freight train miles, fewer passenger train miles, fewer revenue miles, fewer locomotive miles, and fewer traffic units of all sorts other than ton miles?

Mr. Lauck: Yes, that is the fundamental basis of the argument. That is, if that had not been done, there would not have been any productive efficiency at all. You take the period 1890 to 1913, you will find them delivering even less freight train miles, because they increased the freight train loading.

Mr. Sheean: Mr. Lauck, that result would be obtained, would it not, if, in fact, all of the traffic units had remained precisely the same, and the operations precisely identical and merely an increase in wage had been given to the engineers, so that for each thousand dollars' pay they delivered a fewer number of train miles, a fewer number of revenue miles?

Mr. Lauck: You would be forced to show then that your train loading had not increased.

Mr. Sheean: No, but I say if all operating conditions remained precisely the same every train load, every engine, and every grade was the same, and there had been merely an increase in the wages of the firemen and engineers, then reducing it to the last two lines of your table, for each thousand dollars paid engineers and firemen you were getting a fewer number of these various units.

Mr. Lauck: Oh, yes, that would be true, because you would have no efficiency gains at all.

Mr. Sheean: So that the fact that fewer number of these various units have been delivered may be accounted for entirely by the fact that wages have been increased in this period?

Mr. Lauck: Oh, no, not at all. That is not the reason why the fewer number have been delivered.

Mr. Sheean: No. I say it may be accounted for perfectly consistently with everything which is shown in these tables—it may be accounted for entirely by the increase in wages, limiting it now to Exhibits 21, 22 and 23.

Mr. Lauck: You are speaking of ton miles of traffic units.

Mr. Sheean: I am speaking of what you use in these exhibits.

Mr. Lauck: Not freight train miles, not revenue train miles, and not freight locomotive miles, or ton miles. I do not

see how the compensation of engineers and firemen would have any effect on the decrease of train mileage or locomotive mileage; but if there was an increase because of this train mileage, or locomotive mileage, then you would have a decreased productive cost, you would have less ton miles for each $1,000 you paid out for locomotive engineers and firemen.

Mr. Sheean: The only item in the traffic units as to which you show we are getting more in 1913 for each $1,000 than we were getting in 1909, is of ton miles to freight engineers, is it not?

Mr. Lauck: Yes.

Mr. Sheean: And the ton miles distributed to freight engineers is distributed upon the assumption that the payroll to all switch engineers should bear the same relation to freight traffic that the total number of freight revenue miles bears to all revenue mileage.

Mr. Lauck: I had to do that, as I explained this morning.

Mr. Sheean: In that connection, Mr. Lauck, in the distribution that you make here, as between freight and passenger, you said, I think, when testifying in the Eastern case, "I have based my contention on the cost in terms of firemen, per mile, locomotive mile, train mile or any other unit; ton mile if you want to put it on the ton mile. I could not do that, because I could not distribute the operating expenses."

Mr. Stone: What page are you reading from?

Mr. Sheean: I am reading from page 882. At least, I have the note, Mr. Stone.

Mr. Lauck: That is the case we had in the East, of the firemen?

Mr. Sheean: In the Eastern Firemen's case. Now, what new light has come to you on the distribution on the ton mileage basis since that time, and now?

Mr. Lauck: Well, does that testimony refer to productive efficiency, or does it refer to capital cost? You see, in the Eastern case, I distributed the number of firemen in freight and passenger service just identically in the same way that I am doing here, so I do not see how it would apply to this exhibit. It was probably something I said in connection with capital cost. That is, the revenue available.

Mr. Sheean: "I have based my contention," as I have it, "on the cost in terms of firemen—"

Mr. Lauck: In the Eastern case I did identically the same thing as I am doing here.

Mr. Sheean: Distributed the freight firemen—

Mr. Lauck: The number of freight firemen to freight traffic, and the number of passenger firemen to passenger traffic, by this same ratio. And I was met with the contention that the average daily compensation per fireman had increased more than the productive efficiency, and there was great discussion of the use of the number, and great dissatisfaction in that, which is generally discredited, even by the bureaus of the railroads, and so I abandoned that in this connection, but I used the same method as in the East, for the number of firemen, as I did for the $1,000.

Mr. Sheean: Let us clear that up as to being discredited as to the number of firemen. The Interstate Commerce Commission has heretofore required, as a part of their forms, that they report the total number of employes appearing on the payroll on June 30, of each year. Then there has also been reported the average daily compensation?

Mr. Lauck: Yes.

Mr. Sheean: Now, isn't it a fact, that the difficulties and troubles have arisen in the manner of days and not in getting at the number of firemen—in reducing it to the average daily compensation, for the purposes of comparison.

Mr. Lauck: It has been due to the fact that different railroads have used different methods in arriving at the average daily compensation.

Mr. Sheean: You would probably encounter some difficulty in getting at the average daily compensation of the man who, on the long run we have to Burlington, Iowa, and return, leaves here in the evening and runs out the 206 miles and turns around in four or five hours and runs back, and is here the next morning, and then lays off 36 or 48 hours—you would probably have some difficulty in showing how many days that man works.

Mr. Lauck: I think it is practically impossible.

Mr. Sheean: On the way he is paid, he is paid for four days; but there is no difficulty and there has been no criticism

about reporting the number of men on the payroll on a particular day, has there?

Mr. Lauck: The criticism there, is that the number may be something on June 30th, and you may have a depression of traffic in June, and then, if you do have a depression in June, you would have a less number of men on the payroll, and, then, if you use that in productive efficiency, you would have greater productive efficiency—

Mr. Sheean: You do take the number on June 30th, in showing the number of employes who, in an eighteen months period, were on the road more than sixteen hours?

Mr. Lauck: I must confess I did use those numbers. I overlooked that.

Mr. Sheean: So you got a very low number of employes and spread them over a very busy season, when there may have been more on the railroad; yet, taking it that way, you worked out that each one of these men would be on the road more than sixteen hours once in eighteen months, if they shared equally?

Mr. Lauck: Yes. I think Mr. Byram pointed that out.

Mr. Sheean: Now, the point that puzzled me on this ability to distribute now—

Mr. Lauck: I used identically the same method.

Mr. Sheean: As to freight firemen.

Mr. Lauck: If I remember correctly, as to freight firemen. I had ton miles per freight fireman in the Eastern case.

Mr. Sheean: (Handing book to witness.) This was the part I referred to, Mr. Lauck, about the distribution to freight, as I followed it—you were distributing the numbers there, were you not?

Mr. Lauck: (After examining book.) The numbers, yes.

Mr. Sheean: As between freight and passenger?

Mr. Lauck: Yes.

Mr. Sheean: Now, Mr. Lauck, if you could distribute numbers on a revenue basis, or could not distribute numbers on a revenue basis, is there any propriety in distributing the gross compensation to engineers and firemen on the basis of the revenue miles in the two classes of service?

Mr. Lauck: Any impropriety in one would apply to the other. The reason I did not use numbers, was not because of the

impropriety of the method, but on account of the fact that I did not want to use numbers again.

Mr. Sheean: In that connection, you said, as I have it, "I have based my contention on the cost in terms of firemen, per mile, locomotive mile, train mile or any other unit; ton mile if you want to put it on the ton mile. I could not do that, because I could not distribute the operating expenses."

Mr. Lauck: Well, you see the imperfections of the method of distribution would be intensified if you applied them to the operating expense. That is what probably I then had in mind.

Mr. Sheean: And you have thus intensified it here in making the distribution?

Mr. Lauck: Only as to the cost of locomotive engineers and firemen, and, as I have stated repeatedly, that is a rough approximation.

Mr. Sheean: You have intensified it as to the freight cost of the things you have stated here?

Mr. Lauck: Yes, I thought I had fully explained or stated that I did show it to the advantage of freight, when you had that point up this morning.

Mr. Sheean: Now, that being the case, the known fact that comparing every other traffic unit, freight train miles, passenger train miles, revenue train miles, total train miles, total locomotive miles, that for each $1,000 paid we are getting less now than we did in 1909, it may be that if freight was distributed on the actual basis, and assuming, if you can assume, that the relationship of switching and freight is nearer 95 per cent than 50 per cent, that even in this one class here, the increased cost in wages might have kept pace or step with the increased efficiency shown by the earlier part of the table.

Mr. Lauck: I could not say definitely as to that.

Mr. Sheean: I say it might be.

Mr. Lauck: I say that the offsetting tendency there would be to decrease the train miles as compared with the train load or the traffic. You have in that period a 37 per cent increase in traffic handled, and a 14 per cent increase in train miles, and it would not seem that the productive efficiency was really covered by a percentage of 5—it would seem that it ought to be more.

Mr. Sheean: Mr. Lauck, that is all I want to get if we can agree upon that. I think there is no disposition to dispute the

proposition that there is a better train loading, a better car loading during this period—an improvement in that respect. Now, granting that fact, that there has been a heavier train loading, granting the further fact that we all know that, during all the period covered by the last exhibit here, 1909-1913, there has been an increase in wages per mile to the locomotive engineers and firemen, is there anything from which we can determine here whether, by virtue of that increase, we are now getting less per dollar in any kind of miles, or any kind of traffic units than we were previous to that increase?

Mr. Lauck: Getting less?

Mr. Sheean: Yes, less in traffic units. In other words, the increase in wages of course gives us less units for the wages.

Mr. Lauck: Yes. Why, not by this—

Mr. Sheean: Not by this table?

Mr. Lauck: No.

Mr. Sheean: Or any one?

Mr. Lauck: Not by these three exhibits. Of course, there is a very small tendency shown there in productive efficiency, and there is an advantage to freight, as you have pointed out, as to the method of distribution; but, as I have repeatedly stated, the whole idea is one of tendency and approximation, and something that I could not say definitely at all.

Mr. Sheean: Then this further fact, on those exhibits—this carries the exhibits, for comparative purposes, back to the 30th day of June, 1908?

Mr. Lauck: Yes.

Mr. Sheean: June 30, 1908?

Mr. Lauck: Yes.

Mr. Sheean: If we started with June 30, 1910, within forty-five days of the Firemen's Award, and six months or such a matter before the Engineers' Award, and took, as our base, June 30, 1910, you are unable to say whether this entire increase of 4.68 per cent, was in the period from June 30, 1908, to June 30, 1910, or since that time?

Mr. Lauck: No. I would say, if you had a good year, as it was undoubtedly a prosperous year in 1910, that in order to move the heavier traffic you would have to use more train miles. I should say, as traffic goes up and down, the ratio varies also in outlays for engineers and firemen, per train mile or per locomo-

tive mile, just as in the present year, a year of depression, the decline in volume of traffic is modified by the greater proportionate decline in train mileage and locomotive mileage, through increased efficiency of operation.

Mr. Sheean: Yes. Well, Mr. Lauck, this table starts from June 30, 1909, and shows the entire year period. As to whether there were fluctuations up and down in productive efficiency during that time, there was no pretense of showing that?

Mr. Lauck: No.

Mr. Sheean: None whatever?

Mr. Lauck: No.

Mr. Sheean: Now, the result is that from June 30, 1908, down to and including June 30, 1913, there is an apparent showing of 5 per cent increase as to the freight engineers and freight firemen?

Mr. Lauck: Yes.

Mr. Sheean: But shows a decrease in all other units of service than the freight engineers and freight firemen?

Mr. Lauck: Yes, that would be the passenger service, for the reasons that I stated this morning.

Mr. Sheean: Now, whether all of that increase was made between June 30, 1908, and June 30, 1910, and whether or not it has remained horizontal from June 30, 1910, down to the present date, there has been no effort to make any differentiation with you?

Mr. Lauck: No.

Mr. Sheean: It may be, as far as these tables are concerned, that all of this increased productivity of 5 per cent was made in the period from June 30, 1908, to June 30, 1910, and that since that date there has been no increased productivity. I say so far as the tables here?

Mr. Lauck: The tables do not show anything in that respect. Of course, the train loading has gone on steadily, I think. It would be an erroneous assumption to assume that, because if you will look at the—

Mr. Sheean: Coming to the next one in just a minute. 1913, 1914, you have the following—

Mr. Lauck: Yes, and from 1910 to 1913 or 1914 you have this constant tendency to increase the train load. I think all roads have shown that, practically, and of course handling a

larger volume of traffic with fewer train miles. I have not any tables or statistics on that.

Mr. Sheean: You say, "That is shown." You refer to the reports on file with the Interstate Commerce Commission, but which you did not take for any period, beginning, say, in 1910, for comparison?

Mr. Lauck: No.

Mr. Sheean: Returning to page 8, in the paragraph preceding the one to which I called your attention this morning, the language is "as a result of the large increase in the amount of traffic carried over the lines of these railroads, with comparatively small increases in train mileage, and consequently heavier train loads, it has been necessary for the firemen to handle an increase of 24.63 per cent in the quantity of tons of coal consumed." That is, all of the firemen combined have handled 24.63 per cent more coal at the end of the five year period?

Mr. Lauck: Yes, that applies to the total coal consumption.

Mr. Sheean: Whether or not the payroll of the firemen has increased, the total payroll of the firemen has increased more than 24.63, you are not able to state?

Mr. Lauck: No, I could not state anything like that.

Mr. Sheean: If the total payroll of the firemen has increased in as great a proportion as the number of tons of coal have increased, do you think that is any comparable basis as to whether or not we are getting like returns in that respect?

Mr. Lauck: I don't think so. I have thought a good deal about that since this morning, when we had it up. It seems to me it would all be related to the manner in which those payments were made and the kind of engines on which we made them.

The rates of pay would be a better indication of that.

Mr. Sheean: Do you attach any particular significance in the tables to the statement that we are burning that much more coal now?

Mr. Lauck: No, the significance I attach in that connection is to the fuel consumption per locomotive mile.

Mr. Sheean: Then the fuel consumed per locomotive mile you do not assemble for these roads jointly, because of the fact—

Mr. Lauck: They report averages.

Mr. Sheean: Oh, they report averages. Well, of course,

the totals from which those averages are made also appear in their report. You could have worked them backwards?

Mr. Lauck: I could have worked them out, but I did not assemble them because I wanted to avoid the labor of that.

Mr. Sheean: Then I note, Mr. Lauck, that when you are speaking about the roads severally, apparently the context is slightly changed. Taking the first one of them, the Atchison, Topeka & Santa Fe, page 14. You there, repeating the same paragraph say "As a result of the large increase in the volume of traffic carried over the lines of the Atchison, Topeka & Santa Fe Railway with comparatively small increases in train mileage, and consequently heavier train loads, it has been necessary for each fireman to handle an increase of 2.67 per cent in fuel."

Mr. Lauck: That is, assuming that one fireman was on one locomotive. That refers to the fuel consumed per locomotive mile.

Mr. Sheean: Then the reason that you have changed from the firemen collectively in the general group to "for each fireman" when you speak of the roads severally, is because of the percentage increase in consumption per locomotive mile?

Mr. Lauck: Yes.

Mr. Sheean: Well, now, then, if that is a fair basis, Mr. Lauck, can you tell whether or not it is a fact that the compensation to locomotive engineers and locomotive firemen has increased more than 2.67 per locomotive mile?

Mr. Lauck: I do not think I have worked that out anywhere. I have worked out locomotive mile costs, but I have not worked out that percentage. There has been an increase in the cost per locomotive mile, though.

Mr. Sheean: You do know, Mr. Lauck, do you not, that the increase of wages alone per locomotive mile is more than this percentage?

Mr. Lauck: I should think so, yes, sir.

Mr. Sheean: So that, going back to 1909, as a base, the increase per locomotive mile to both engineers and firemen granted in 1910, is a greater increase than this coal consumption per locomotive mile, clear down to the present time?

Mr. Lauck: I should think so.

Mr. Sheean: So that the increase which was granted in 1910 to both the engineers and firemen, not only takes care of

all the increased productivity clear down to date, but some other elements besides that?

Mr. Lauck: I do not hold to that view, you know.

Mr. Sheean: Well, as to this one road, if the increased productivity has been 2.67 per cent in that period, and if, in the middle of the period, an increase of approximately 10 per cent was given, that 10 per cent took up the 2.67 per cent plus some other things?

Mr. Lauck: Well, the point about this period is that it is limiting it to a restricted period of time, the last five years, which I would not assume had all been covered in the preceding years. That is, if you assume that 1909 marked the point where all elements had been satisfied as to productive efficiency and all other elements of reasoning would be correct. I do not hold to that view, however.

Mr. Sheean: I think you said this morning you had never gone back to any base that was fair and had reached no decision on that?

Mr. Lauck: No.

Mr. Sheean: And this is purely a matter of cost?

Mr. Lauck: I am simply showing the tendency or relationship, without relation to actual wage payment.

Mr. Sheean: Speaking of the mere relationship, whether the basis was proper or improper, there has been an increase in the consumption of fuel per locomotive mile of 2.67 per cent during the whole period, and you know that there was an increase in wages of more than that amount per locomotive mile?

Mr. Lauck: Yes, I think that is correct; but I do not hold that that is significant, because I do not confine my tendency to this period, or do not attempt to work out any determination of what the wage may be.

Mr. Sheean: Assuming that the matter was covered by an arbitration and decision in 1910, in order to justify your assumption for going back of that time, you would also assume that the award did not give a proper allowance for increased productivity to date?

Mr. Lauck: Yes, that is my thought, but—

Mr. Sheean: And it is your thought, in order to show very much in the way of increased productivity, you would have to go back of a five year period?

Mr. Lauck: Yes, I think Mr. Stone brought that out clearly in his opening statement.

Mr. Sheean: Of course, Mr. Lauck, the farther you go back and the smaller the engine and the smaller the railroad and the smaller the traffic, the lower the base, in other words, with which to make comparison, of necessity, the greater the increased productivity you will show, by the tables?

Mr. Lauck: Yes.

Mr. Sheean: So that, if in fact, there has been no material change in operating conditions with the last period of three or five years, and therefore no material change in productive efficiency, your argument would not be applicable as to the period from 1909 to 1913?

Mr. Lauck: The point that I could not understand there would be that you have a decided change in operating conditions; that is, you have your greater train load and greater tractive power. Now, it must be some other factor that is affecting the fuel consumption on that road; it may be the capital factor, it may be the elimination of grades or curves; but you still have the productive output in terms of moving a greater volume of traffic. In the case of the Atchison, it is an increase of 23 per cent in ton miles, with 8.45 per cent in freight train miles.

Mr. Sheean: Yes. Now, following your suggestion this morning, Mr. Lauck, I have hurriedly thrown together, or had thrown together a combined statement including the following roads: The Chicago & Alton; the Chicago, Burlington & Quincy; Chicago Great Western; Chicago, St. Paul, Minneapolis & Omaha; the Colorado Midland; the Colorado & Southern; Duluth, South Shore & Atlantic; Denver & Rio Grande; Fort Worth & Denver City; Louisiana & Arkansas; Mineral Range; Minneapolis, St. Paul & Sault Ste. Marie; Missouri, Kansas & Texas; Missouri Pacific; St. Louis, Iron Mountain & Southern; St. Louis Southwestern; Texas & Pacific; Union Pacific; and Wabash. And, taking the basic tables which you make use of here, for these roads, taking your own basic tables, as to tons of coal, it would seem that in the year 1909 the tons of coal consumed were 15,140,994, for which the firemen received $6,651,373. In 1913, on the same roads, the total coal consumed was 19,136,488 tons, for which the firemen received $8,774,150. Dividing the tons of coal per $1,000 of compensation, it would seem that in

1909 these railroads, for each $1,000 paid their firemen, were having shoveled or consumed 2,280 tons, while in 1913 there were being shoveled for each $1,000 of compensation paid firemen, 2,180 tons; or that in 1913 the firemen were shoveling 100 less tons per $1,000 than they were in 1909. I think you said this morning that that was a fairly accurate way of ascertaining whether or not the increased compensation had adequately kept pace with the increased work.

Mr. Lauck: I am at a loss to understand that. Have you the showing for the individual roads? Does that show the separate roads?

Mr. Sheean: We can get that from your basic table. The first one they give me is the Chicago & Alton. We can get the tons of coal from your basic table on the Chicago & Alton, I believe.

Mr. Lauck: The point that is seemingly inconsistent is that if the firemen are shoveling less coal, for instance, say here on the Milwaukee, which I have before me, it shows fuel consumed per locomotive mile, which I believe you mentioned, a 20 per cent or 19.81 per cent increase.

Mr. Byram: Might it not be in the increased rate of pay of firemen as we talked about this morning?

Mr. Sheean: Surely.

Mr. Byram: This is money we paid out to the firemen for their services, and if that rate of pay increased because of the use of big engines, automatically increased the rate of pay right along, might not that account for the fact that the total payments for shoveling coal are greater than they were before, per ton?

Mr. Lauck: Some factor increasing the outlay for firemen per $1,000 would have to account for it.

Mr. Byram: That does do it.

Mr. Lauck: That is, if you show it this way.

Mr. Sheean: Of course, you know in that period there has been a very substantial increase in wages, both to engineers and firemen. I have taken only the firemen's wages here in connection with the total coal consumed, because I understood you to say last week that it seemed to sort of impinge upon the firemen, so far as the hard work is concerned.

Mr. Lauck: I think that the factor is the fireman, the measure of the increased work of the fireman.

Mr. Sheean: Now, the details as to any one of these roads enumerated here, Mr. Lauck, are taken from your own tables. You do set out in the basic statistical tables here the total coal consumption, do you not?

Mr. Lauck: Exactly.

Mr. Sheean: And I have attempted to take those which were solely coal roads in that list, and taking your own figures as given in the basic statistical tables here, the entire number of tons in 1890, and the entire payroll, it is easily ascertained how much per ton we paid for it at that time, or how many tons, in other words, we got for each dollar or each thousand dollars. I understood you to say this morning that that would seem to give some fair measure, whether or not the increased work had been paid for commensurately by reason of the wage increase.

Mr. Lauck: I think that is the true index. I think in the case of that, as in the case of all other percentages, comparing them that way, you would have to take the conditions of employment into consideration. That is, I do not know what other factors may have affected that decrease in coal consumption.

Mr. Sheean: No, but we will come to the other factors with other tables; we are talking now simply about these tables.

Mr. Lauck: No, I mean relating that to the big locomotive or the increased tractive power, on the basis of productive efficiency.

Mr. Sheean: If, during this time, in addition to the actual increase in money—this is merely money—and if in addition, during this time, there have been improvements in the way of automatic stokers, automatic fire doors, sloping tanks, provisions for breaking coal to proper size for firing, automatic shakers, power coal pushers, and other things, that would simply show that not only less coal was consumed, but it was done with less physical effort, would it not?

Mr. Lauck: If that could be shown, yes, sir; but I do not know anything about that.

Mr. Sheean: In order not to have anything wrong with this showing of taking the tons of coal off of the fireman's back, as Mr. Carter sometimes talks about, you would have to show here that instead of any progress in mechanical efficiency, we had given him less adequate tools to work with or more arduous

working conditions than in the preceding period; is not that true?

Mr. Lauck: That would be true, yes. I am at a loss to understand the showing there.

Mr. Sheean: If, in addition to the fact that he not only is paid more per ton of coal than he was, or putting it the other way, that for each $1,000 we pay, there are required less tons of coal to be shoveled, if in addition to that there has been improvement in other conditions, by being relieved from certain work, and better appliances with which to do the work, the increase in compensation may be even greater than is shown by this table; is not that true?

Mr. Lauck: That would be true. I do not know anything about that, though. I say that would be true on theoretical grounds to be shown.

Mr. Sheean: Passing Exhibits 21, 22 and 23, then, Mr. Lauck, your Exhibit 24 makes a comparison between 1913 and 1914, I think, of certain roads; but if I have properly analyzed the report all that you attempt to show by this is that there has been an increase in the efficiency, both as to train load and possibly as to car load, reducing it to a tonnage basis?

Mr. Lauck: That is 24?

Mr. Sheean: Yes, 24.

Mr. Lauck: That carries the same thought as the preceding, but confines it to the past year.

Mr. Sheean: Yes.

Mr. Lauck: The same method is employed throughout, and the same attempt to work out productive efficiency.

Mr. Sheean: Yes. Now, again, Mr. Lauck, during this period, from the figures shown on these roads severally, does it appear that on all of the traffic units other than the ton mile per thousand dollars compensation, that the company is paying more, or getting less, whichever way you put it?

Mr. Lauck: You mean the train mileage, now?

Mr. Sheean: Yes.

Mr. Lauck: They are always paying more per train mile, of course; all the time. But—

Mr. Sheean: Yes. That is, when and as they load up the train and get any increased tonnage, they are always paying more for that train, are they not?

Mr. Lauck: Well, they are paying more, because it requires more labor to move that train.

Mr. Sheean: Yes, and of course, you also know that if the train is hauled with the heavier power, that there is a higher rate of wages upon the heavier power?

Mr. Lauck: Yes.

Mr. Sheean: That is, a man would make—

Mr. Lauck: Yes, that is as I understand it. I do not know anything about the rates of engineers and firemen, but I understand they are based on relative tractive power or weight on drivers or some indication of tractive power, so much per hundred miles.

Mr. Sheean: It would not be feasible at all, would it, in your judgment, Mr. Lauck, to base the compensation of engineers on the ton miles or passenger miles that are made; that is, take a passenger train without a passenger on it, the engineer would be compensated for as much as if it were fully loaded with passengers?

Mr. Lauck: Oh, yes, I think he is not responsible for that.

Mr. Sheean: That is, you start out, then, with the assumption that the rate to be paid must be on the basis of 100 per cent efficiency as to loading up with passengers?

Mr. Lauck: I think the real basis of payment or the real test is the train mile or locomotive mile.

Mr. Sheean: The train mile or locomotive mile. Well, now, is it not a fact, Mr. Lauck, that per thousand dollars paid engineers or firemen, we are getting less per train mile and getting a fewer number of train miles?

Mr. Lauck: You are getting a fewer number of train miles, but you are getting proportionately more on the train; that is the idea, as I understand it, of all railroad operating efficiency, to move their trains—

Mr. Sheean: I think you said the only proper basis was to refer it to the train mile?

Mr. Lauck: Well, I do, because that is an indication of efficiency. That is the whole object of railroad operation, to move the greatest possible amount of traffic with as few train miles as possible.

Mr. Sheean: Exactly. And we are paying more for those train miles, are we not?

Mr. Lauck: Yes, but my contention is—

Mr. Sheean: Now, whether or not we are paying more, or whether the increase that has been granted and that is being paid is commensurate with the added burden, there is nothing in these statistics from which you can make any deduction on that ground, from the statistics merely?

Mr. Lauck: From the added burden, you mean of cost?

Mr. Sheean: Whatever basis you put it on. This is merely cost.

Mr. Lauck: My idea was that the result of increasing the train load, although you have increased the cost, in terms of engineers and firemen, you have been more than compensated by the increased gains per train mile.

Mr. Sheean: Let us see, Mr. Lauck: Supposing here, for instance, I understand the Milwaukee is about to electrify or is electrifying some four or five hundred miles; I assume they will get that power from some power plant that generates the electricity and furnishes that to the engines; assuming that without any change in grade of any kind, by the installation of electric motors, they will put on that four or five hundred miles of road, that twice the tonnage is hauled; that the engineer upon that train makes it in less time, with less physical effort than handling it with steam; on your basis here of extending productive efficiency, you would show an increased productive efficiency by that engineer?

Mr. Lauck: I think it a well recognized fact that the employe should participate in that gain. All the factors would have to be taken into consideration.

Mr. Sheean: Supposing it had all been conducted at a loss up to the time this was done; are you not necessarily starting with that assumption when you talk about granting these increases; are you not assuming that in all these conditions in times past that they have been adequately compensated, that capital has been compensated, and that the adjustment was fair at that time as between labor and capital?

Mr. Lauck: I think there is no doubt about the capital being compensated on the railroads, but I do not think there has been an equitable participation of labor. I do not think there is now.

Mr. Sheean: Assume now, in this Milwaukee case, that with

the substitution of electric power, that they do haul twice the train load without any change in grades whatever; but, assuming further, that the engineer has no added burden or responsibility, that it is easier to handle with new and better power, no responsibility for making his power or seeing that his power is made by the fireman; assuming that in order to do that the company has spent millions of dollars in order to get the power plant to electrify the system, would you, on this set of tables—I am not asking about any argument to be based upon it—but would you, by the method which you have adopted, show that the engineer and fireman had increased 100 per cent in efficiency?

Mr. Lauck: No, I would apply a different principle there. I would show an increased efficiency, but I should not think that this vast amount of capital should be remunerated, and then if there was a lowering of costs, through the improvement of this road, just like the introduction of improved machinery in a steel mill or cotton mill, I think some element of participation ought to be given to the worker.

Mr. Sheean: Now, I assume, with that sort of a plant there that is covered in the hypothetical question, that when you get the higher type of machinery and more expensive type of machinery, and this power plant and all to keep up, that the relative cost of maintenance of that would be very much higher than keeping up a less expensive plant, would it not?

Mr. Lauck: That should all be provided for, yes.

Mr. Sheean: So that when you get over to these later figures in which you show an increasing cost of maintenance, if you have a more valuable plant to maintain, the relative cost of maintenance may increase, may it not?

Mr. Lauck: It would very likely increase.

Mr. Sheean: It very likely will increase?

Mr. Lauck: Yes, but—

Mr. Sheean: But there has been no effort in any one of these exhibits, 21, 22, 23 or 24, to make any segregation at all as between expenditures for better power, for elimination of grades, for any of the elements that may have combined to produce it?

Mr. Lauck: Those factors are not considered here at all. It is just the productive efficiency, without regard to costs, or any other element, and—

Mr. Sheean: Tho productive efficiency of the plant as a plant?

Mr. Lauck: And, so far as I am able to ascertain, on this thousand dollar basis, of the tendencies in regard to the men, that is, the locomotive engineers and firemen.

Mr. Sheean: And on that tendency every traffic unit that has been spoken of here, other than the ton mile unit, does not show that the engineer or firemen have contributed to it?

Mr. Lauck: I think that is more a matter of inability to get sources of information than—

Mr. Sheean: I am not asking about that, Mr. Lauck, but on what you have, and what you put up.

Mr. Lauck: There is a similar tendency here, and an unfavorable showing for passenger traffic, but I think it—the tendency as a whole is plainly evident from the ton mileage and train mileage.

Mr. Sheean: Well, Mr. Lauck, applying your formula—again turning back to 23, working it backwards as well as could be done from the fact that you do not show there what you have left for passenger, but taking either the one at page 5, or the one at page 7, you give us no basic tables as to what the totals there are, as to these 56 railroads, or the 78 railroads. Taking the 78 railroads at page 5, having given the total freight locomotive miles, of course you can ascertain what the total passenger miles must be in your deduction?

Mr. Lauck: Yes.

Mr. Sheean: Well, is it not a fact that carrying out the same formula on all of these things, that you would show an increase in the freight train miles, an increase in the passenger train miles, an increase in the total revenue train miles, an increase in the tons of freight one mile, and the number of passengers one mile?

Mr. Lauck: There would be an increase all the way through, but a proportionately less increase for train and locomotive mileage than for ton miles.

Mr. Sheean: You get your total payments to engineers and your total payment to firemen, and is it not a fact that applying it to all of these units of traffic, the freight train miles per $1,000, show a decrease? the passenger train miles per $1,000 a decrease?

Mr. Lauck: Oh, I think that is undoubtedly true.

Mr. Sheean: Well, revenue locomotive miles per $1,000.

Mr. Lauck: Yes, I think that is true, as I repeatedly said. There has been an increased cost per locomotive mile, an increased cost of train mile, passenger mile, freight mile, but that has been compensated for by the increased return in the heavier train load.

Mr. Sheean: That comes to some other exhibit, as to where the compensation comes?

Mr. Lauck: Yes, sir.

Mr. Sheean: All that we get from this first set of exhibits is that the cost of ton miles per ton mile has been less, but you know in addition to that, that the cost per train mile, per locomotive mile, per every other unit than the ton mile, has been greater.

Mr. Lauck: Well, confining it strictly to this exhibit, I do not see where we get any element of cost at all. That is, I am at a loss to see where you find any element of cost.

Mr. Sheean: Well, ton miles per $1,000 compensation to freight engineers. That is the cost, is it not?

Mr. Lauck: That is the only element.

Mr. Sheean: You have shown the only element which shows we are getting anything more for our money, and every other element shows we are getting less for our money.

Mr. Lauck: That is not shown. There is no other element of cost there except the ton miles per $1,000.

Mr. Sheean: That is the only element of cost, but you can make the like extension from the figures which are there, from every other element known in transportation service.

Mr. Lauck: You could do that. The point there was to show on some basis of increased returns. That is, it might have been a man or $1,000, or any other. Those are about the only two elements you could have devised, I think.

Mr. Sheean: The only point is, Mr. Lauck, that for each $1,000 paid out, we are getting some more ton miles?

Mr. Lauck: Yes.

Mr. Sheean: But for each $1,000 paid out we are getting a fewer number of locomotive miles, a fewer number of passenger train miles, and a fewer number of freight train miles.

Mr. Lauck: That is not shown here, but it is an inference.

Mr. Sheean: It can be deduced, however, fairly from the detail from which you work out the other?

Mr. Lauck: Yes, it is an inference.

Mr. Sheean: Whether demonstratable from the figures.

Mr. Lauck: Yes. I will freely concede that, and then there is a significance when it is compared with the next set of exhibits.

Mr. Sheean: Now, then, let us turn to the next set of exhibits. Perhaps before going to the set we can pass this so we will be by them; No. 25 is a comparison in the number of empty and loaded cars in freight trains. That is simply the one set covering that?

Mr. Lauck: Yes.

Mr. Sheean: Showing that we have now more loaded cars in the train than we did in 1909?

Mr. Lauck: And more load in the car.

Mr. Sheean: And more load in the car.

Mr. Lauck: Exactly. Simply a supplementary statement to the train load statement.

Mr. Sheean: Well, our car loading is better now than it was in 1909; our train loading is better than it was in 1909; but by a comparison with both the East and South, we, as yet, have not got either the car loading or the train loading up to what they have in the East and the South.

Mr. Lauck: I know you haven't as to train loading. I never compared the car loading.

Mr. Sheean: As to train loading we are not up to either of those sections.

Mr. Lauck: Not up to the East.

Mr. Sheean: The East, hauling a heavier train load, as it does, is paying a lower rate of wages to both its engineers and firemen—you also know that to be a fact?

Mr. Lauck: I never looked into that. I have heard that stated.

Mr. Sheean: The argument in the East is to bring it up to the West.

Mr. Lauck: Yes.

Mr. Sheean: Notwithstanding the load that is hauled by the engineers and firemen is greater in the East, the wages still

remain lower in that territory, after an award, than they are here at the present time?

(No response.)

Mr. Sheean: No. 26 is quotations showing the improvement in loading, or, I won't bind you to it as to the loading—

Mr. Lauck: It is a verification from the statements in the annual reports of the presidents, of the preceding exhibits.

Mr. Sheean: They have been getting more in the trains number of years, does it not; or is it the last three years? through the succeeding years. Some of this goes back quite a

Mr. Lauck: The last four or five years.

Mr. Sheean: There is still a chance for the improvement which the Interstate Commerce Commission suggests could be made both in the train loading and in the car loading.

Mr. Lauck: Oh, yes, the railroad presidents, in the next exhibit, say they are going to get an increase of that.

Mr. Sheean: As a prerequisite to getting any increase in freight rates or any additional compensation, the Commission thinks there are still some other economies in this direction. Of course, if the economies are distributed to the employes in proportion to their contributions to them, there will not be any economies left, will there?

Mr. Lauck: I don't recall that the Interstate Commerce Commission made any statement in that connection. If the employes have not brought about any economies, of course the productive efficiency would not obtain; but my contention is that they have, and that they should therefore participate. I thought the Interstate Commerce Commission had pretty well put aside the economy argument in the last rate decision; that is, the granting of the increase to the Eastern roads.

Mr. Sheean: Didn't they, in denying an increase in the rates to the East, point out to them the necessity for even further economies, not only in this but several other respects, and then was not the increase granted solely upon the ground that a war that nobody foresaw at the time they denied the increase, brought about an entirely different condition?

Mr. Lauck: I haven't followed the Interstate Commerce Commission's decisions very carefully, but I think the economies referred to related to switching charges and car demurrage, and small industrial railroads that absorbed the rates of

the larger railroads. I didn't think that they had made any mention of any lack of efficiency in car loading or train loading.

Mr. Sheean: They did comment on the improvement in that respect, did they not?

Mr. Lauck: I don't recall.

Mr. Sheean: Well, we will go to the next set of exhibits, that is, 27, 28 and 29.

Mr. Lauck: No. 27 is the quotations from the railroad presidents.

Mr. Sheean: Yes, we can pass that. Numbers 28, 29 and 30. Now, Mr. Lauck, in that connection, I wish you would explain just why, in Exhibit 30, you did not make the comparison by groups, which is made in all the other tables covering the period 1909 to 1913?

Mr. Lauck: I thought I had explained that when I was giving my direct testimony. The reason I did not present it by groups was that I did not have time remaining. I was so pressed with other things, that I printed this just as it was. I have never thrown it into groups.

Mr. Sheean: The same period, 1909-1913, is shown in Exhibit 23 on the other proposition, the productive efficiency, by groups.

Mr. Lauck: Yes.

Mr. Sheean: And the data which are used in Exhibit 30 are obtained from the same reports from which the data was compiled in Exhibit 23?

Mr. Lauck: Yes. The point of it is this, that those exhibits were prepared, and then, in preparing these three, I had not completed these 1909-1913 revenue gains comparisons by the time it was necessary to go to print, and in order to throw it into print in groups; and then, owing to the pressure of other things, I never made the groups. I thought, however, I ought to put it in this form, because in some places it is unfavorable to the contention, and for the sake of fairness, in order to have the thing well rounded out.

Mr. Sheean: Isn't it a fact that the roads, taken as a group, and grouping them in the same way that you grouped the roads in Exhibit No. 23, will show very limited, if any, net gain in revenue during this last five-year period?

Mr. Lauck: I don't know. I have never put them in a

group. It might be true. Some roads show a decrease here.

Mr. Sheean: Some roads show a decrease?

Mr. Lauck: Yes. As I stated, I put this in in order that there might not be any imputation that I was holding this out, which seemingly did not show the revenue gains that the other periods did. Just as this exhibit we have been discussing shows, as compared with other periods, showing a relatively small proportionate gain.

Mr. Sheean: Exhibit 23 covers the period 1909-1913, showing that we got somewhat more ton miles for our $1,000 in this last period. However, only about 5 per cent more. Now, in this Exhibit 30 there is nothing, by the grouping of roads, showing whether we have had a revenue gain on that ton mile basis, as much as 5 per cent or not—or any other revenue gain.

Mr. Lauck: No, I have not worked that out. If you would like to have that submitted, I would be glad to work it out and put it in. I just neglected, or overlooked it through the stress of time.

Mr. Sheean: I would appreciate it very much, if you have available the underlying data.

Mr. Lauck: I will be very glad do that.

Mr. Sheean: Setting up your Exhibit No. 30 on the same basis that you have set up your numbers 27 and 28, and show in that connection, if you will, please, the same grouping of roads, as to which, in Exhibit 23, you show an increase of 5 per cent.

Mr. Lauck: I will be very glad to do that.

Mr. Stone: May I ask a question for information?

How soon do you want this information?

Mr. Sheean: How soon could that reasonably be done, Mr. Lauck.

Mr. Stone: I think if he could go over the figures with your experts they might agree on it.

Mr. Sheean: You understand they are not the basic tables. We haven't the basic tables from which this is made up. There is no basic table shown for the group. I am correct in that?

Mr. Lauck: Yes: I don't think that would take me very long to do that; it is practically all done.

Mr. Stone: Have you got your figures here, or are they in Washington?

Mr. Lauck: Part of them are in Washington.

Mr. Sheean: I am perfectly willing that they should be filed at any time during the hearing, Mr. Stone.

Mr. Lauck: The point is about this period, I have put this in, as well as the other exhibit, to show the tendency of this period; but I am not holding to this period as determining the measure of productive efficiency.

Mr. Sheean: Well, we quite understand it, Mr. Lauck.

Mr. Lauck: I wanted to make that perfectly clear.

Mr. Sheean: And, you of course understand that the railroad companies, having made an increase in wages to both of these people, in 1910, about the middle of the period, would like to know whether or not that increased wage during that time has been commensurate with all you can show in productive efficiency during the period.

Mr. Lauck: I think a very satisfactory exhibit along those lines would be to take 1909—from 1908 and bring it up year by year, and, in that way, you would have the cumulative effect and be able to determine it much more accurately, especially for 1910.

Mr. Sheean: But if you take 1910, Mr. Lauck, down to the time that this increase was actually granted, knowing generally the condition of traffic in 1910, you feel quite sure that the relative increase from 1910 to date is not nearly so great as what you carry here?

Mr. Lauck: No, not at all. The heavier traffic might have been moved with more train miles. You might not have had your heavier power on that traffic. The volume of the traffic itself would not have indicated anything in this connection outside of your train miles?

Mr. Sheean: But it gives an opportunity, of course, to get better loading, if you have the traffic.

Mr. Lauck: If you have the traffic and if you have the facilities for that heavier tonnage.

Mr. Sheean: And this Exhibit 30, that you speak of, on page 2, as having yielded large net gains per revenue mile. You mean there that they yielded increases not necessarily profits?

Mr. Lauck: Increases, yes. That is, that there was a net gain, in the majority of cases, over expenses.

Mr. Sheean: Well, you have simply shown during this

period the total operating revenue which is arrived at by—I mean—

Mr. Lauck: That is the total gross operating revenue.

Mr. Sheean: The total gross operating revenue?

Mr. Lauck: Which is reported by the railroads to the Interstate Commerce Commission on that basis. That is, that is the basis on which you report to the Commission.

Mr. Sheean: The Commission, of course, recognized by its method of accounting that, after you had arrived at both the total operating expenses and the total operating revenue, that before there is anything available, there must be deducted the element of taxes.

Mr. Lauck: Before there is any return to capital.

Mr. Sheean: That is just what I wanted to ascertain. Is it your viewpoint that if because of the increase in the plant and equipment, or more favorable plant, or more favorable equipment that is being operated, the taxes have been increased on that plant, that even before you pay the taxes upon the property, that labor must be taken care of?

Mr. Lauck: Well, I did not mean to present that point of view; no, sir. I think that, theoretically speaking, the general view is that labor should be taken care of outside of capital considerations—like we were speaking the other day of the railroad in the hands of a receiver, but as a going concern, no.

Mr. Sheean: Well, on your productive efficiency theory here, the increase in taxes is said to be due, in part, to the fact that we have a $20,000 locomotive instead of a $6,000 locomotive, and that taxes are spread accordingly upon that larger locomotive. You take simply the gross earnings here—limiting it now to the one engine and the one crew, you take that engine and that crew, and after finding the gross revenue derived from that larger engine, deduct the expenses and show as net available for distribution, to somebody, before any deduction for taxes is made.

Mr. Lauck: No, I don't do that, if you will recall, in the exhibit on revenue gain.

Mr. Sheean: I mean by this, this is revenue gain we are on now.

Mr. Lauck: Well, that is revenue gain from the train mile understanding. That revenue gain is available for taxes and

for compensation of increased capital investment. In working the thing out in the succeeding exhibits, I made allowance for taxes, if you will recall.

Mr. Sheean: But I am talking about this Exhibit No. 30, now.

Mr. Lauck: Well, there the gain is simply the gain in revenue over increase in expense, without regard to taxes or any other factor, but a comparison of revenue gain with increased expenses.

Mr. Sheean: Well, now, Mr. Lauck, on this Exhibit 30, the total cost of the engineers and firemen of course is easily ascertained from the basic tables, I assume.

Mr. Lauck: The cost per train mile, yes.

Mr. Sheean: Yes. Increase in cost of engineers and firemen and revenue gains per revenue train mile. Now, I think you said that you had some doubt of the propriety of reducing this to a percentage basis, as to whether or not the cost of the engineers—

Mr. Lauck: I think it all ought to be expressed in terms of dollars and cents, yes, for the reason that I have repeatedly stated.

Mr. Sheean: Expressing it in terms of dollars and cents, have you made any effort to ascertain and determine what the total operating—what the increase in the total operating expenses have been?

Mr. Lauck: Only on the basis of dollars and cents, which is in the case of the Atchison here, 25 cents per revenue train mile.

Mr. Sheean: And the total operating revenue has increased what?

Mr. Lauck: Has, in the case of the Atchison, increased net 15 cents, leaving a loss of 9 cents for the Atchison.

Mr. Sheean: Well, in fact then, taking that one road, the Atchison, the total operating expenses have increased 25 cents per revenue train mile, while the total operating revenue that they have received from it has only increased 15 cents a mile?

Mr. Lauck: Yes. That may be due to a declining freight rate on that road. I don't know.

Mr. Sheean: It is also due, is it not, to the fact that the engineers' cost has increased—in part that is due to the fact

because, out of that total loss of 9 cents, about 10 per cent of it is shown on the first line to be due to the fact that the engineer is getting more per revenue train mile?

Mr. Lauck: The point I attempted to develop, subsequently, was that these increased costs, while they are partly due to the engineers and firemen, are not primarily due to that.

Mr. Sheean: I think we will not quarrel about that, that the increased cost is not entirely due to the engineers and firemen, but in this increased cost shown to the Atchison on the first line,—

Mr. Lauck: 87/100 of one cent.

Mr. Sheean: And there is 9.6 cents total increase to them, in cost per train mile?

Mr. Lauck: Yes.

Mr. Sheean: And about 10 per cent of that increase in that period is due to the engineers in this showing, or is absorbed by them?

Mr. Lauck: Yes; comparing it with the total cost, which would seem to be a better basis, it would be something less than that.

Mr. Sheean: Now, taking the next one, apparently making a revenue gain.

Mr. Lauck: I call your attention there, Mr. Sheean, that this decrease is for a period—you understand there is a large net return available to the Atchison there.

Mr. Sheean: That we will come to in another exhibit. As to those, where there has not been any productive efficiency, they can take care of it by paying it out of their surplus.

Mr. Lauck: They can pay for it out of previous productive efficiency. Productive efficiency developed which has not been compensated for.

Mr. Sheean: But possibly contributed to that surplus by some other men in times past. You would have to get back to determine just how that accumulated or how you did that. Or, let us wait until we get to the surplus. Is that another exhibit, Mr. Lauck? Now, you have in several other exhibits shown the Union Pacific and the Northern Pacific and the Oregon Short Line, and the Wabash. They are omitted from this exhibit, Mr. Lauck, are they not?

Mr. Lauck: I don't know whether they are.

Mr. Sheean: Well, you are not able to state whether or not all of those lines, reduced to this formula of increase in cost of engineers and firemen, and revenue gains per revenue train mile, whether they would not now show a loss in revenue train miles?

Mr. Lauck: Well, I don't know. They show a loss. They were not admitted for that reason.

Mr. Sheean: Well, now, even as to these roads, Mr. Lauck, which show a loss to the railroad companies in every case, notwithstanding the loss of revenue, it is shown that the engineers and firemen have received more per train mile, per revenue train mile.

Mr. Lauck: Yes, I think that follows from the—as I have stated, from the heavier train load and the increased cost of engineers and firemen to the railroad.

Mr. Sheean: Well, referring it then to the basis of per revenue train mile in all cases, there is an increased cost to the railroad companies in these years, in terms of engineers and firemen?

Mr. Lauck: Yes.

Mr. Sheean: They, as a class, are receiving more money per revenue train mile?

Mr. Lauck: Yes. That is due to the—I think to the heavier train loading and more charges against the train mile which is pulling a heavier load, together with what increases in wages and rates of pay they have received.

Mr. Sheean: How much of it may be due to the one thing and how much to the other, you do not know?

Mr. Lauck: I don't know.

Mr. Sheean: And there is no way from these tables by which you can tell?

Mr. Lauck: You would have to take specific trains, I should think, to work that out.

Mr. Sheean: Well, this table, Mr. Lauck, was the one that you referred to when we were taking the 23, in which you said that the increased contribution of ton miles you thought showed that the ton mile compensation, or that the revenue train mile compensation had also grown during this time.

Mr. Lauck: I referred to this series of exhibits, not specifically to this period.

Mr. Sheean: And I am seeking, Mr. Lauck, to limit it, or to talk in connection with the exhibits, about a time when railroads were fairly comparable in their operations, viz.: 1909-13. Of course, all the matters I mentioned this morning run through all the exhibits; any change in mileage you made no account for.

Mr. Lauck: I do not think it made a particle of difference in working this out.

Mr. Sheean: Suppose, on one hundred miles of railroad that I have, if you can conceive of that condition, I am getting a certain number of ton miles here this year. Next year I am fortunate enough to get another hundred miles of railroad, and I get just twice the number of ton miles on that other hundred miles of railroad that I had on the first hundred miles. The way you have carried out these exhibits would show an increase of 100 per cent in efficiency, wouldn't it?

Mr. Lauck: Not at all.

Mr. Sheean: Do you take other than the ton miles hauled over every railroad?

Mr. Lauck: Yes, as compared with train miles and locomotive miles. That is, the whole fundamental basis of my argument, is that the increase in train mileage and locomotive mileage has not kept pace with the increase in traffic.

Mr. Sheean: In what way did you use the ratio of revenue miles here to the ton miles?

Mr. Lauck: I use the revenue freight train miles per $1,000 outlay to distribute the resultant return between freight and passenger traffic.

Mr. Sheean: All right. Then we will take the case of that one hundred mile, two hundred mile railroad, in two succeeding years. In the first year of operations I have been paying half of my wage roll to engineers and firemen engaged in construction work. But in the second year's operations, paying the same wage roll, precisely the same, I am paying it to men who are using tonnage.

Mr. Lauck: If you are paying it, in the further instance, to persons on construction, you would not be moving any traffic.

Mr. Sheean: And in the second year, because of it being the same engineers and getting the same amount of money, you would have an increase of 100 per cent in efficiency.

Mr. Lauck: Well, if you charge—

Mr. Sheean: Well, would you or wouldn't you?

Mr. Lauck: Well, in a case like that you would, but that is not the way the railroads report to the Interstate Commerce Commission.

Mr. Sheean: No. And you won't find in the Interstate Commerce Commission any set of figures such as you have set up here, or deductions on productive efficiency.

Mr. Lauck: Of course, the Interstate Commerce Commission do not put forward any figures as to productive efficiency.

Mr. Sheean: Yes. Do you know of any comparison on the ton mile or train mile, or any other basis, in which they do not eventually carry it out to per $1,000 investment, or per 100 miles of road operated?

Mr. Lauck: I don't see where that would—frankly speaking—where that would enter into the argument at all. I cannot see where the per mile of road operated would affect this, except reducing it to a smaller area of computation, or a smaller figure. The railroads are supposed to report their revenue train load, freight train mileage, and the revenue locomotive mileage. Now, if they are charging the cost of engineers and firemen to construction, that would be in violation of the regulations of the railroads to the Interstate Commerce Commission.

Mr. Sheean: And they don't do that, as you do. The point that I am making, Mr. Lauck, is that you have taken the total payroll in which they report as the Interstate Commerce Commission tells them, simply the aggregate amount that is paid all engineers and firemen, and you have distributed that entire payment thus reported to purely revenue basis.

Mr. Lauck: And thereby to my great disadvantage, which I enjoy for the reason I am charging against the revenue tonnage all the non-revenue producing tonnage.

Mr. Sheean: And you have assumed that the relation of the revenue and non-revenue tonnage has remained the same during all the period?

Mr. Lauck: According to accountants' regulations it should. It should never be considered, should it? That is, of course, if the railroad is charging its construction cost to operating expenses.

Mr. Sheean: But, Mr. Lauck, let me understand here, I am

not making any suggestion that the railroad has charged it in that way. I am seeking to ascertain from you whether or not you, by your method of distribution, are doing something which neither the railroad nor the Interstate Commerce Commission has ever done, of distributing the entire payroll of engineers and firemen to the revenue train mile.

Mr. Lauck: The railroads report to the Interstate Commerce Commission their total cost of engineers and firemen. If, to get that on a revenue train mile basis, the company freight has been charged to these engineers and firemen, or construction, I perforce must charge that against the revenue train mile, because I have no other alternative. Thereby, as I have said, carrying this tonnage—non-revenue producing tonnage on to the revenue producing freight.

Mr. Sheean: And thereby assuming that the relationship from one year to another, between the revenue and the non-revenue, has remained the same?

Mr. Lauck: Yes.

Mr. Sheean: In order to make your statistics fairly comparable from one to the other?

Mr. Lauck: Yes.

Mr. Sheean: Any change in the relationship between the revenue and non-revenue, would not make fairly comparable one period with the other.

Mr. Lauck: There would be variations in the company freight hauled. That would cause a variation from one period to the other.

Mr. Sheean: Now, Mr. Lauck, during the time; for instance take the Milwaukee Railroad, while the Milwaukee Railroad was building the Chicago, Milwaukee & Puget Sound, taking simply the total pay roll, as they are required to report to the Interstate Commerce Commission, of all engineers and all firemen, and distributing that total pay roll of engineers and firemen to the traffic hauled on that road, do you think that the distribution between the period while they were doing the construction work, and after they completed it, would be in the same ratio?

Mr. Lauck: It should be in the same ratio. The Milwaukee is a very unhappy example, because it did exactly the things that the Interstate Commerce Commission does not require.

There was a special investigation of that very fact by the Interstate Commerce Commission.

Mr. Sheean: Well, then, did they do the things that you are doing here now and which you say is something that ought not to be done, of distributing a total pay roll in that way?

Mr. Lauck: I did not say that it should not be done.

Mr. Sheean: I understood you to say that they did in that case the thing which the Interstate Commerce Commission said they ought not to do.

Mr. Lauck: What the Milwaukee did was to charge their operating expenses to their capital account.

Mr. Sheean: Mr. Lauck, has any of that anything to do with the distribution of the total pay roll in the way that you have distributed it here?

Mr. Lauck: It has not.

Mr. Sheean: It has not?

Mr. Lauck: No.

Mr. Sheean: Well, then, let us stick to what you have done with the total pay roll. The Interstate Commerce Commission requires the railroad to report all total payments made to engineers and firemen, doesn't it? Exactly and only in that form.

Mr. Lauck: Total annual compensation.

Mr. Sheean: Total annual compensation. Now, taking the total annual compensation, all that I want to get, Mr. Lauck, is whether or not a change in the relationship of revenue and non-revenue from year to year on the same railroad will cause the figures which you deduce to be non-comparable?

Mr. Lauck: They will cause variations, not to be non-comparable. Let me explain just a moment, Mr. Sheean, because we can assume and must assume that the railroads are endeavoring to follow the requirements of the Commission, that they were not charging any construction or anything like that to the operating expenses.

Mr. Sheean: This does not take operating expenses at all.

Mr. Lauck: Or charging engineers engaged in construction. The only factor that would enter in there would be the engineers, wouldn't it, hauling company freight or maintenance material, some factor of that kind?

Mr. Sheean: Would the work train enter into it at all, the

number of work train engineers you have one year and not another?

Mr. Lauck: That is what I mean by maintenance. I suppose we had the same thing in mind. Or company material, ties, ballast, things of that kind. Of course, the proportion would vary according as the maintenance varies.

Mr. Sheean: So that, in your distribution between freight and passenger, may the ratio between freight and passenger ton miles and passenger miles change on the road, from year to year?

Mr. Lauck: Yes. Vary for the same consideration.

Mr. Sheean: But you took in your distribution of freight arrived at on a revenue mile basis, carried over to the total payroll in one year, the same as in another on the purely revenue train mile basis.

Mr. Lauck: Purely arbitrary, yes.

Mr. Sheean: If there was a change in the relationship, that is between freight and passenger, in those two years, so as to cause any variation of the larger rate that is paid on freight, would that affect your figures in any way?

Mr. Lauck: Yes, the larger rate paid on freight would—you mean per man now, don't you?

Mr. Sheean: Or per mile, or per hour, or per day.

Mr. Lauck: The larger rate would be reflected, it seems to me, in a larger outlay on the freight side of the equalization.

Mr. Sheean: And you have not carried that larger outlay out here, in saying "per $1,000 paid freight engineers."

Mr. Lauck: I have endeavored to carry it out as much as I can. This is purely arbitrary and subject to criticism—this method, but it has been consistently followed all the way through on a purely arbitrary basis, to try and develop this tendency.

Mr. Sheean: Now, Mr. Lauck, on this Exhibit 30, on your increased revenue gains, are you able to state whether or not the percentage of increase to engineers and firemen is greater or less, rating the system as one operating system, than the percentage in revenue gains to the railroad?

Mr. Lauck: No, I have not worked that out, that percentage. You mean whether the cost of engineers' and firemen's increase to the railroads has been greater than the revenue gain to the railroad per revenue train mile?

Mr. Sheean: Yes.

Mr. Lauck: No, sir, I have not worked that out. I have alluded simply to the dollars and cents compensation.

Mr. Sheean: Have you made any effort to ascertain whether or not during this last period there has been a net gain in the operating revenue adequate to meet the increased cost of engineers and firemen, combining them into one system, as you did in the earlier period?

Mr. Lauck: No, I did not prepare that total, as I stated a while back.

Mr. Sheean: Well, of course, in any combination of fifty-six or seventy-eight, or any other number of railroads, a large system like the Union Pacific or the Northern Pacific, with a large payroll, counts much more in the aggregate selection of the roads than the smaller roads that might show some increase during this time.

Mr. Lauck: That is, if there was a large loss on that.

Mr. Sheean: Yes.

Mr. Lauck: Would offset probably a great many gains on the smaller roads.

Mr. Sheean: Now, Mr. Lauck, just to make sure on that, I assume that in setting up the combined operations for one system you would use just the same railroads that you use in 23, in which you show the increase in ton miles. I think you set up two groups there, and presumably the figures will be available for those two same groups there, for this period 1909-1913.

Mr. Stone: Will all the reports for the railroads be in for that period that you want?

Mr. Sheean: Oh, they are all in.

Mr. Stone: That is where he has to get his basic figures.

Mr. Sheean: As I understand it, this is not 1914 I am ask- about now. This is 1909-1913. He has combined them, and must have all those figures, because he has combined in the other tables the productive efficiency for that period. You have them, Mr. Lauck, haven't you?

Mr. Lauck: I don't know whether I have them or not. If I have not, I can get those figures.

Mr. Sheean: Would it be more difficult for you to check this statement that I read this afternoon, that was hurriedly put together, combined statement tons of coal per $1,000 paid fire-

men on the enumerated roads, and is reported, put together on the basic table shown in your report? You could check that or have it checked.

Mr. Lauck: Yes, I would like to look into it.

Mr. Stone: Don't your experts guarantee it?

Mr. Sheean: Mr. Stone, you will recall that it was very shortly before lunch that the question arose as to what were coal and what were non-coal roads, and this was very hurriedly put together.

Mr. Lauck: Some of these roads, I was told, had oil burners. I tried to get a couple of roads that were purely coal, and the only one I could arrive at was the Union Pacific.

Mr. Stone: The Union Pacific has a number of gas cars.

Mr. Lauck: In my basic tables any notes that are given to the Interstate Commerce Commission of a table on tractive power also states how much tractive power was in oil burners. I thought we must arrive at it in some computation that way.

Mr. Sheean: The suggestion I made, Mr. Lauck, was to refer to your basic tables, and where they showed any oil burners at all, to exclude the entire road, just to get the purely coal roads, and that was the effort—going to your tractive table. Now, there has been no particular check on that except your tractive effort tables.

Mr. Lauck: I don't intend to hold you to the accuracy of this table. I think it is a very salient point that we all ought to look into. That is my idea about it. I cannot understand it.

Mr. Stone: It may develop later that the tons of coal reported to the Interstate Commerce Commission by the railroads may bear investigation.

Mr. Lauck: It might be that. I cannot harmonize it with the coal consumed per locomotive mile.

Mr. Sheean: Well, the coal consumed per locomotive mile in this last period, Mr. Lauck, of 1909-1913, is very small, is it not?

Mr. Lauck: Yes, it is very small. And then, of course, you have got to figure how the men were paid in shoveling this coal, whether it was on the big engines, or how it was.

Mr. Sheean: Now, the next one is also a group, is it not, 31, 32, and 33, we can take together, Mr. Lauck?

Mr. Lauck: Yes, sir.

Mr. Sheean: Of course the same point you make, that back in 1890, taking a quarter of a century, there has been a great deal more of an increase proportionately than there has in the last five years.

Now, so that there can be no misunderstanding about those two earlier periods, Mr. Lauck, on the charts as you examined them here, page 3, for instance, there has been no effort to show from year to year anything in that regard, but you have simply taken the two bases, that is all, and drawn a straight line now between 1890 and 1913, although there may have been a great number of variations up and down on these lines, and it is not intended on any of these periods to indicate that there has been a steady progressive tendency in that direction, but simply starting with 1890 as the starting point, and the only other point considered being 1913, and drawing a straight line between those two points.

Mr. Lauck: That was, as you can see, brought about by the necessities of the case. That is, in working out all these ratios there was an enormous amount of work, and I could not work them for each year very well.

Mr. Sheean: In these two periods, which I am inclined to treat as ancient history, and which you insist on considering in connection with the matter, that same thing obtains throughout, of having only a starting point and a finishing point, and it was not, I know, intended to indicate that here had been a general increase through all of that time.

Mr. Lauck: No, there may have been a very zigzag line.

Mr. Sheean: And so when we get to 33, Mr. Lauck, 1909 to 1913, that is what has happened on each of those charts from June 30, 1908, down to June 30, 1913, on the labor cost.

Mr. Lauck: Yes, the same thing.

Mr. Sheean: It is entirely consistent with the way in which these charts are prepared, that there was from 1908 to June, 1910, and going upward or downward, by way of these lines, sufficient to take up the entire variation and from 1910 on simply level, that it had obtained in 1910.

Mr. Lauck: There might have been variations there which I know nothing about.

Mr. Sheean: But you do know that along somewhere well

into this period, there was a change in wages for both engineers and firemen on all the railroads that are shown?

Mr. Lauck: I know that from the fact there was an arbitration and an increase granted. I never have studied the effect on that.

Mr. Sheean: No, I am not attempting to pin you down to any dates on that. But, consistent with the ultimate result shown, taking from the end of the line to the end of the line, there might have been a going up from 1910, and a going down from that date on, which would simply keep 1900 and 1913 practically level as shown here?

Mr. Lauck: There might have been any kind of a variation there.

Mr. Sheean: Yes. Well, now, on this 33, Mr. Lauck, at page 4, you have a chart of the ratio of operating cost to operating expenses for 78 Western railroads. Taking the 78 railroads together, the labor cost of transportation is shown, pretty nearly a straight line across the middle of the page, is it not?

Mr. Lauck: Yes, 27.69, 27.91.

Mr. Sheean. The labor cost of maintenance has somewhat gone up during that period?

Mr. Lauck: Yes.

Mr. Sheean: It is entirely consistent, is it not, that a quality of efficiency in your engines and equipment will show added maintenance costs?

Mr. Lauck: Oh, yes.

Mr. Sheean: So that the efficiency that is brought about in some of your other tables may be brought about by a higher maintenance cost, either higher wages per man, or as an entirety, in keeping up your equipment?

Mr. Lauck: That may be.

Mr. Sheean: There is nothing at all, from the mere fact that maintenance costs have gone up, while the labor cost of transportation has remained about stationary, that is indicative of anything particularly, is there, except the proposition that you were making, that the labor cost of transportation has not taken it all?

Mr. Lauck: Yes, that these increases in costs have occurred, which I aim to show were not primarily due to the transportation

factors. Now, your point is that the maintenance costs were necessary preliminary to that, or a necessary attendant circumstance.

Mr. Sheean: Or may run along concurrently with it; that, with a plant equipped with block signals, with the more expensive kind of machinery, or even with a change in policy of keeping your machinery up to the notch at all times, there may be shown a higher labor cost of maintenance or an increase in wages, or any one of those things may be producing causes?

Mr. Lauck: Yes, it may be heavier equipment or better road bed or heavier bridges, or any factor of that kind.

Mr. Sheean: I wish you would explain just what is included in the item of labor cost of transportation?

Mr. Lauck: Labor cost of transportation. The Interstate Commerce Commission, as you probably recall, requires a segregation of these accounts.

Mr. Sheean: Yes, it was just to get before the Board just what items there are in that labor cost of transportation.

Mr. Lauck: This labor cost is labor cost in connection with the handling of trains; I think that expresses it briefly. It includes the superintendence, the station employes, the weighing and car associations, yardmasters and their clerks, yard conductors and brakemen, yard enginemen, road enginemen, yard train crews, and road train crews. I think telegraph operators are also included.

Mr. Sheean: In the cost of conducting transportation?

Mr. Lauck: Yes.

Mr. Sheean: During this last period, Mr. Lauck, speaking generally, the labor cost of operation has increased on these various roads?

Mr. Lauck: That is the total labor cost that you are referring to?

Mr. Sheean: Yes, total labor cost of operation.

Mr. Lauck: Yes, that constituted an increasing proportion of total operating expenses.

Mr. Sheean: And the labor cost of maintenance has also increased during the period?

Mr. Lauck: Yes.

Mr. Sheean: The labor cost of transportation has increased during the period?

Mr. Lauck: Yes, more slightly than the other.

Mr. Sheean: Very slightly. The labor cost of engineers and firemen has increased slightly?

Mr. Lauck: Yes.

Mr. Sheean: Now, the part of these items to which the engineers and firemen are more nearly comparable than any other, is the total labor cost of conducting transportation, is it not?

Mr. Lauck: It is.

Mr. Sheean: Without fixing it in percentages, you do know, do you not, that the cost of engineers and firemen has increased more rapidly during this period of time than the total labor cost of conducting transportation?

Mr. Lauck: I had never computed that. It would seem from the diagram that they run about parallel. That is, the cost of engineers and firemen increased .09 points.

Mr. Sheean: What page are you reading from?

Mr. Lauck: Page 3. The supporting data is there. I should think that the percentage would be less in the case of engineers and firemen than in the total labor cost of transportation.

Mr. Sheean: You haven't carried out nor do you give the data, so far as I can see on the table, Mr. Lauck, by which to arrive at the total cost of engineers and firemen to the total cost of labor transportation?

Mr. Lauck: Of transportation?

Mr. Sheean: Yes.

Mr. Lauck: I have shown the decline of engineers and firemen as compared with the total labor cost of operation but not of transportation. If you will notice there is .09 points increase in total cost of engineers and firemen and a .22 points in total cost of transportation.

Mr. Sheean: Now, in the group, Mr. Lauck, in which the engineers are classified by the Interstate Commerce Commission of the cost of conducting transportation, the wages of engineers and firemen in that group is about something like 30 per cent of the entire wages in that group, isn't it?

Mr. Lauck: I don't know. I suppose that is correct. It is about 12 per cent of the total, I think.

Mr. Sheean: Now, this labor cost of operation includes not only the cost of conducting transportation but all other labor?

Mr. Lauck: That includes all labor employed by the railroad companies.

Mr. Sheean: Now, in the classification with the Interstate Commerce Commission makes, it throws the engineers and firemen into this class known as conducting transportation, does it not?

Mr. Lauck: Yes.

Mr. Sheean: Now, while you have shown on the diagram on page 4, the labor cost of transportation, I do not find on page 3, that you have carried out the comparison you have made between engineers and firemen and the entire labor cost of transportation?

Mr. Lauck: No, I did not put that on the diagram.

Mr. Sheean: Nor is there in the detail here anything that shows a comparison between total cost of engineers and firemen and total labor cost of transportation, is there?

Mr. Lauck: That is not worked out at all. The other is worked out in the table, but the latter is not worked out at all.

Mr. Sheean: Have you, easily available, just what the figures are from which you could make a comparison between the total labor cost of transportation and the total cost of engineers and firemen in the two periods?

Mr. Lauck: That is given in the basic tables. That is, you have your total labor cost of transportation, I believe—

Mr. Sheean: But not by these groups. I guess you have for the 62 railroads.

Mr. Lauck: For the 62 railroads it is surely given. I have never worked out the ratio. It would be the ratio between the outlay for locomotive engineers and firemen and the total labor cost of transportation, obviously.

Mr. Sheean: Do you think that comparison might be helpful, Mr. Lauck, to ascertain whether, in 1909, of all of the labor cost of conducting transportation, the engineers and firemen were getting a certain percentage and, of all the labor cost of conducting transportation in 1913, they were getting another percentage—has the contribution, in other words, of all the people engaged in conducting transportation contributed to this increased efficiency of which you spoke?

Mr. Lauck: Have all the people?

Mr. Sheean: Yes.

Mr. Lauck: Well, I would not be able to answer that.

Mr. Sheean: Well, has there been some contribution, in some way, by those who are engaged in conducting transportation?

Mr. Lauck: I think there has been a distinct contribution by the actual factors engaged in moving trains. As to the other classes of employes, I don't know what their duties are.

Mr. Sheean: Train despatchers—I suppose they have something to do with getting trains over the road—telegraph operators?

Mr. Lauck: Oh, they have a very direct connection. As I say, I don't know what the part contributed would be.

Mr. Sheean: I wasn't attempting to make any distribution among them; but if, Mr. Lauck, it should be shown that, in 1909, of the total amount paid labor engaged in conducting transportation, as the Interstate Commerce Commission defines conducting transportation, the engineers were getting a certain percentage of the entire wages paid in that department, and, if, in 1913, they were getting a larger percentage, do you think it would be of any help or utility, in determining whether or not the others should b brought up to the level of the engineers before the engineers asked another increase?

Mr. Lauck: I have never looked on any of these ratios in that relation. I think all the other factors would have to be considered. I never had considered it in connection with whether the differentials of one class of employes or the other should be considered.

Mr. Sheean: That is what I was wondering about on your page 3, why you made a comparison with the total cost of engineers and firemen to the total labor cost of operation—you are comparing them through that one section with all classes of labor, while you do not make any extension of the comparison with the labor cost of conducting transportation.

Mr. Lauck: My object in making that comparison was to show the tendency exhibited by the outlay for locomotive engineers and firemen with the total labor cost of operation. It never occurred to me to limit them to transportation per se; that is to say what the relative trend had been as compared with

other labor engaged in conducting transportation. Of course, the other classes of labor that would be practically on a par would be the trainmen, would they not? That is, the train despatcher, the telegrapher, the yardmaster, the switchman, and so on, would not have this direct relation to the train load that the train crews would have.

Mr. Sheean: You haven't heard any of the switchmen nor conductors nor trainmen tell about their contribution or responsibility for the additional cars in the train, have you?

Mr. Lauck: Well, I say the conductors and trainmen would have this direct contact with the train mile.

Mr. Sheean: But the switchmen would not?

Mr. Lauck: Well, I don't know just what the duties of the switchman are. While I was reared in a railroad town, railroading has changed so—

Mr. Sheean: You have included all the switch engineers here. Do the switch engineers contribute to this increased productive efficiency?

Mr. Lauck: Well, I don't know just what switch engineers do now, that is, if they switch cars around and arrange the train—of course, they do not have as direct a contact, as direct a handling of the train as the road enginemen. Just the same as the point I am making about the telegraphers and despatchers, that their duties would not be so directly affected by an increased train load, it seems to me, as the men actually on the train or on the engine hauling that train.

Mr. Sheean: Now, as to the despatcher, Mr. Lauck, if he put someone in on a siding with a train, as I understood you, this decreased productive efficiency would show in a case of that sort; or if he got a man over the road so no overtime was paid, he would add to the increased productive efficiency all through the tables, wouldn't he?

Mr. Lauck: If it was possible for him to do that, then the despatcher would have a very important contribution, that is, granting that the efficiency of the despatcher was the only thing that prevented the train from getting over the road.

Mr. Sheean: I did not make any such assumption. I wanted to know if there was not a contribution by all the people classified by the Interstate Commerce Commission as in the department of conducting transportation?

Mr. Lauck: There is a contribution more or less direct or remote, just as we were discussing the other day, as to whether a man in the machine shop should contribute to productive efficiency or whether he did make a contribution. If a man working on a lathe or an anvil does not feel any effect of it, I should say that his participation should be correspondingly remote.

Mr. Sheean: Then, in the case of the substitution of an electric engine, in which the physical work is actually lighter than the work of a steam locomotive, where do you differentiate between the man who is working on the lathe and the man who is working on the electric locomotive, which has a greater tractive power, and coincidentally, less labor?

Mr. Lauck: Say a man is working on an anvil and you substitute a trip hammer for the anvil, that increases his output. Then I think he should be given some measure of participation, just like the engineer, who may do less, should have some measure of participation in the improved machinery, on the general theory that labor should have some share in the increased productiveness brought about by the machinery or better capital instruments. However, if the labor is affected by increased work, of course, it ought to have more. The characteristics of a great deal of machinery in its application and installation is less labor on the part of the workman; still that would not vitiate the principle, it seems to me, although it would be correspondingly less.

Mr. Sheean: Well, just what is the principle here, Mr. Lauck? That, as productive efficiency decreases, that wages should share commensurately downward?

Mr. Lauck: No, the principle is that as productive efficiency increases, attended by a more severe strain, and decline in earning capacity of the men, and with the necessity of handling more fuel, that they should be given a more fair measure of participation, to offset these added works, hazards and responsibilities. Then, these special cases have been brought up, as to a man who does not do anything to contribute to this result; that is, applying the theory very widely, and putting a very extended specific application to it, and the only way it can be justified would be on granting some measure of participation for nothing that the employe may do, but giving him some measure of participation in improved productive processes,

which has been characteristic, I think of most factory production or machine production. But there are isolated instances here which have just been brought up, to my mind, to give exaggerated application to the theory.

Mr. Sheean: I want to get at what your view is on the decreased productive efficiency here, with something that neither the railroad nor the employe has anything to do. The railroad is there, the employes are there ready to move the traffic; the traffic does not come, therefore there is not the ability to get the train load or the car load of which you speak. If your theory is established or admitted or accepted, should the employes, in that situation, scale downward their wages as the ability to operate efficiently decreases?

Mr. Lauck: If the railroads—we are assuming now that this railroad is losing traffic and cannot get the train load, although it may have the tractive power, it cannot get the traffic to put on the train. I think the railroad ought to pay the wages or the men ought to go somewhere else to work.

Mr. Sheean: Pay their wages based on 100 per cent efficiency?

Mr. Lauck: Pay the prevailing standard of wages for the use of such locomotive.

Mr. Sheean: And that rate of wages should be predicated upon 100 per cent efficiency?

Mr. Lauck: Well, it should be predicated on the efficiency of that locomotive and of the fireman and engineer on a normal railroad. This would be a very abnormal railroad that you are speaking of; either that, or an insolvent railroad, or one that should never have been built. Of course—

Mr. Sheean: In the case of one which should never have been built, but, nevertheless, must be operated because of its public character; in that situation, how do you apply your theory of productive efficiency?

Mr. Lauck: I think that under those conditions the men should receive the standard rates of wages, or whatever the normal rates of wages are on other railroads.

Mr. Sheean: How do you ascertain what the normal rate of wages on other railroads is?

Mr. Lauck: By the efficiency of the men using this heavy tractive power. For instance, if you had a good railroad and it

developed the proper train load, and if, by the use of the heavier tractive power, were moving more traffic with fewer train miles, then, if you had a railroad which was built through lack of economic foresight, and the traffic did not develop, like we have in the West and some other sections of the country, the men woull not be responsible for that. Of course, they would have the alternative of leaving the railroad and working for a railroad that was normal, but I think they should have the same rates of pay as they were paid on similar engines on other railroads.

Mr. Sheean: And that that rate of pay should be established for the road which could not be operated efficiently, or based upon the operating opportunities of other railroads?

Mr. Lauck: Taking into consideration, of course, these other factors I have mentioned about the shoveling of coal or handling of fuel. If there were small engines operated on this road, there would be a less rate, of course; and if you consider a road like that, it would not be an engine of the highest tractive power; you could hardly conceive of that. It would probably have some engines which were more nearly adapted to the character of its business or the character of its lack of business, than on a normal road.

Mr. Sheean: Let us take a situation which I used to be familiar with, of seeing the Burlington Railroad running the Mississippi bluffs on a .3 of 1 per cent grade, and the Chicago Great Western climbing up the hill on a 1 per cent grade. Now, the Burlington railroad hauled without any difficulty, right on this line between Chicago and St. Paul, on the .3 per cent grade, three times as many cars as the same engine on the Chicago Great Western could haul. Do you think there should be a difference in the wages of the men operating on those two lines?

Mr. Lauck: Well, according to the theory advanced here, the Great Western would have overcome that with locomotives of greater tractive power, and if the Burlington had the same train load, owing to its reduction in grade, it could do it over the road with a locomotive of less tractive power; therefore the rate on the Burlington for the same train load would be probably less than on the Great Western.

Mr. Sheean: Well, we will get them down to the minimum that is fixed here, the smallest kind of engine, the kind that they

used to run in those days that I know of. They both had these engines, but the Burlington by this same minimum power engines could haul along the Mississippi Valley there three times as many cars as the Chicago Great Western could haul up over these bluffs, with the same engine precisely. Now, is it your thought that, predicated upon the tons which they do haul, that there should be a difference in the wages of the two lines?

Mr. Lauck: Well, in the case of the Burlington there, you would have, on account of added capital investment, more efficiency in operation, I should say, that should be remunerated under any conditions. I do not know whether it was the natural contour of the country or not. It may have been the natural contour of the country.

Mr. Sheean: It was, to some extent, at least.

Mr. Lauck: And due to better location. Therefore, on the Great Western, they would have greater difficulty in getting a smaller train load over the territory, due to the fact that they came into the field after the Burlington, or from whatever cause.

Mr. Sheean: What I am trying to get at is—

Mr. Lauck: I think the minimum rate of wages should be the same on both roads. Of course, that minimum would probably be based on the minimum requirements, and taking into consideration other factors than productive efficiency.

Mr. Sheean: Then, that minimum requirements must be predicated upon the road least able to operate successfully, must it? The wage must be based on the Great Western's operation in the two cases?

Mr. Lauck: Well, we could not accept that principle, because that would sort of put a premium on inefficiency of operation, would it not?

Mr. Shean: I am talking about the situation which the two roads encountered when they built there, where from Savanna to St. Paul the Burlington built on .3 of 1 per cent grade, while the Great Western built on a grade of 1 per cent, and a tunnel nearly a mile long, that we have heard described here. Now, they are operating between the two points, and with the same tractive power. The one could easily haul a train three times as long as the other, and it looked to me as if the Great Western men were working harder going up that grade than the Burlington men were on the level.

Mr. Lauck: I should think they would be.

Mr. Sheean: Now, which do you think should have the highest rate of wage, or should there be any difference in the rate of wage, and if so, how would you arrive at it?

Mr. Lauck: Well, of course, on the general principle that I am advocating I would base it or relate it to the efficiency of the men on the different roads. But in coming down to an actual determination of the rate, you would have to take into consideration the amount of work that these men were doing on one road or the other. That is, the men on the Great Western's small train might be working harder than the men on the train three times as long on the Burlington. You would have to take that into consideration and other conditions of movement.

Mr. Sheean: And might not be so productively efficient, with that added amount of work?

Mr. Lauck: Might not be so efficient.

Mr. Sheean: How far is it practically possible, in your judgment, Mr. Lauck, to relate the theory of productive efficiency to a standard wage movement?

Mr. Lauck: As I have repeatedly stated, it is the principle which I am advocating as a general justification for wage increases, growing out of an increased productivity of the railroads. As related to actual determination of rates or any specific amount to be given, I do not think that we have the data; there would be so many variations, that it cannot be used for that purpose.

Mr. Sheean: It cannot be used for that purpose?

Mr. Lauck: No, sir; but it is just developing a general tendency, which would seem to my mind to justify the payment of additional wages.

Mr. Sheean: If you have available the underlying data by which you can show the total cost of engineers and firemen to the total labor cost of transportation on any of these tables, I would appreciate that.

Mr. Lauck: I have not that available. I would have to work that out.

Mr. Sheean: You have not it available?

Mr. Lauck: I have not worked it out. I would be glad to supply it to you.

Mr. Sheean: Unless it is accessible to you, I would not ask you to do it.

Mr. Lauck: No, I would have to work out the ratio.

Mr. Sheean: Then I will not ask you to do that, Mr. Lauck. I thought possibly you had that worked out in connection with with these other data.

Mr. Lauck: No, I have not.

Mr. Sheean: But we can, as to the 62 roads and the 10 roads—

Mr. Lauck: Yes, if you have any difficulty, I would be glad to point it out. But it is the total outlay for transportation to the firemen, the ratio.

Mr. Sheean: Showing whether or not during this last period, the increase to engineers and firemen has been greater or less than the general trend in labor cost of transportation.

Mr. Lauck: Yes. The point there that I was trying to get to, Mr. Sheean, was that the train crew is the most direct basis of comparison, is it not? That is, would it not be better to compare that with other employes specifically on the trains rather than by the employes, including the superintendent and everyone else?

Mr. Sheean: Well, I am not prepared to admit, Mr. Lauck, that the only person who has contributed to increased efficiency is merely the engineer or the train crew, but that all persons who are engaged in conducting transportation have made some contribution to it.

Mr. Lauck: I would extend that to the whole road.

Mr. Sheean: Including the section men?

Mr. Lauck: In that application of the argument.

Mr. Sheean: Well, you have in fact extended it to the whole road here, to the section laborers and every one, in making the comparison of the total labor cost of operation, have you not?

Mr. Lauck: Yes, of course, always bearing in mind the amount of contribution each class has made.

The Chairman: We will adjourn until 10 o'clock tomorrow morning.

(Whereupon at 5 o'clock P. M. on the 11th day of January, 1915, an adjournment was taken until 10 o'clock A. M. Tuesday, January 12, 1915.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 12, 1915.

Met pursuant to adjournment at 10:05 A. M.
Present: Arbitrators and parties as before.

Mr. Stone: Before taking up the cross examination, Mr. Lauck desires to make two or three corrections.

Mr. Lauck: On page 2369, in answer to a question of Mr. Sheean about the assignment of cost to freight and passenger traffic, I said, "The imperfections are such that I cannot say anything accurately." I would like to soften that word without changing the meaning, to "definitely." That is, I do not want to change the meaning, but I am afraid that somebody reading the record in the future might misconstrue the meaning.

Page 2358, about the center of the page, in the sentence, "Yes, it would show," change "it" to "the productive efficiency would show."

Page 2402, the sentence in the fourth paragraph from the bottom of the page, "and still a heavier train a man would have to haul," change to "still a man would have to haul a heavier train." Just an inversion of the words.

W. JETT LAUCK was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: Mr. Lauck, I handed you yesterday the general summary of a combined statement of a number of roads,

showing the tons of coal on coal burning roads, consumed in 1909, and the coal consumed in 1913, the wages paid firemen in 1909, and the wages paid firemen in 1913, from which I deduced, based on your basic tables, that in 1909 for every $1,000 paid to firemen 2,280 tons of coal were consumed, and for every $1,000 paid to firemen in 1913, 2,180 tons of coal were consumed, or 100 tons less per $1,000 of compensation of 1913 than in 1910. I have this morning the detail of the figures from which that brief summary was made, and I will hand you that so that will probably enable you to check it more rapidly than you can from the very brief summary I handed you yesterday; and if you find errors or inaccuracies in that, Mr. Lauck, will you call attention to it at some time (handing paper to witness).

Mr. Lauck: I will be very glad to.

Mr. Sheean: I think we had reached and passed Exhibit 33 last evening. Exhibit 34, as I understand it, is a comparison between the years 1913 and 1914, reduced to a revenue train mile basis. Now, Mr. Lauck, you have made no summary here as to which of the roads increased and which of the roads decreased in that time.

Mr. Lauck: No, sir.

Mr. Sheean: But from a general observation it would seem that the larger number of the roads and much the larger proportion of the mileage show a decrease, or increase in cost, rather —an increase in cost based upon the revenue returns.

Mr. Lauck: I haven't counted the roads. This was submitted to supplement the exhibits preceding and to show a tendency in a year of industrial depression.

Mr. Sheean: And that tendency, during this last year, generally speaking, upon the roads shows an increase or a decrease, or can you deduce any conclusion from it except that it affected different roads differently?

Mr. Lauck: It affected different roads differently, some decreased and some increased.

Mr. Sheean: That might be with equal human efficiency on all roads and dependent upon traffic conditions affecting different roads differently?

Mr. Lauck: I think primarily it is the traffic and the managerial ability in getting the traffic over the road cheaper, and with the further conclusion that where they did get it over the

road cheaper it added to the burdens of the men. That would be my point.

Mr. Sheean: The detail on this is not carried out except merely on the total cost per revenue train mile of engineers and firemen?

Mr. Lauck: That is all. I got that up hurriedly at the last moment.

Mr. Sheean: 35. That is primarily an article reprinted from a magazine. 36, Mr. Lauck, seems to be a comparison of the revenue train mile with the capital investment?

Mr. Lauck: Yes.

Mr. Sheean: Have you ever seen a comparison made on that basis any time, Mr. Lauck?

Mr. Lauck: Never before, no, sir.

Mr. Sheean: Never before. Now, that comparison of 36, showing what your capital stock, or the ratio that your capital stock—

Mr. Lauck: The second part?

Mr. Sheean: No, right in the first part, Mr. Lauck.

Mr. Lauck: That is the physical cost of the road.

Mr. Sheean: By "capital investment" you mean what they call road and equipment?

Mr. Lauck: Yes, cost of road and cost of equipment.

Mr. Sheean: Cost of road and equipment. And the ratios shown between 1900 and 1913 are simply compared with the revenue train miles?

Mr. Lauck: It is dividing the total outlay by the number of revenue train miles in each period.

Mr. Sheean: Well, your investment remaining the same in the two years, if you ran two revenue trains in one year where you ran one before, you would change the ratio?

Mr. Lauck: Yes, that would decrease—

Mr. Sheean: Well, just what significance is there in that, that you change the ratio between capital stock and revenue miles by changing the number of trains that you operate?

Mr. Lauck: Well, with the development of productive efficiency you would have proportionately less train miles than you would in comparison with your capital outlay before. That is, the tendency would be to increase the capital investment per train mile.

Mr. Sheean: Well, supposing the one year—counting merely revenue train miles, supposing in one year you are hauling coal and in another year you are hauling live stock, what significance is there between the mere number of train miles and the capital invested in the property, if any?

Mr. Lauck: The significance which I wished to develop there was, so far as it is shown by the number of examples I have submitted, that making this rough comparison—on the basis of revenue train miles, continuing the analysis a step further, you have in the case of some roads a decrease in the capital outlay per revenue train mile operated. There is no special significance between the number of miles and the—except in that respect.

Mr. Sheean: I was wondering why you might not just as well have it, Mr. Lauck, decrease of capital investment per number of telegraph poles along the right of way. Is there any more significance or any less significance in putting it per revenue train mile?

Mr. Lauck: The reason for that is, and the significance, that the train mile being all through the exhibits considered as the unit of cost, this was a rough attempt to arrive at the basis of cost on this unit. That is, we have been considering operating costs per revenue train mile, and this is carrying it a step further, to capital cost. Of course, the tendency as a whole would be, other things being equal, for the capital and cost to increase per revenue train mile, because the railroad equipment and operating efficiency would decrease the number of train miles as compared with the capital outlay, in order to get a heavier train over the road.

Mr. Sheean: Well, ordinarily, any comparison of this sort is reduced to per mile of road, or something of that sort, is it not?

Mr. Lauck: Well, I never have seen a comparison of this sort made before. That is, a comparison on the revenue train mile basis. It is simple division, and the reason it was done was because, as I have stated, the revenue train mile being considered the unit of cost, it was inserted here to show tendencies in the case of certain roads.

Mr. Sheean: Well, you also used the ton mile as the unit of cost in some of the figures, productive efficiency?

Mr. Lauck: Yes.

Mr. Sheean: A different result would be brought about here if you made the comparison with the ton mile, would it not?

Mr. Lauck: If you could separate your—the difficulty there would be, as it is all the way through, of separating your capital investment to freight and passenger. If you did do it, of course you would have to have a decreasing cost per ton mile, in order to offset the increased—

Mr. Sheean: I was wondering whether, even if you made that comparison per ton mile, whether that would have any particular significance, reducing it to that basis for comparison.

Mr. Lauck: If that could be done I think it would show decreasing capital outlay per ton mile, although that would be simply an opinion on my part. It would be impossible, I think, to segregate your capital cost between freight and passenger traffic. It is difficult enough to do it between operating expenses.

Mr. Sheean: And in making all these figures in 1900, you have taken road and equipment accounts?

Mr. Lauck: Yes, sir.

Mr. Sheean: As they stood in 1900?

Mr. Lauck: Yes.

Mr. Sheean: And the uniform methods of what was carried if this were adopted only in 1907?

Mr. Lauck: Yes, all their accounting practices.

Mr. Sheean: Did you make any study at all as between 1909-13 in this respect?

Mr. Lauck: No, I made no study.

Mr. Sheean: But it is fairly deducible from the other exhibits as to revenue train mile comparisons that the showing would be different for 1909-13 from what it is where you cover the period 1900 to 1913?

Mr. Lauck: As a general thing, in the case of all roads, you could expect to cover cost I think on the basis—train revenue per mile on that basis, although I have simply taken it because it shows a remarkable tendency there, different from what you would expect. You ought to expect an increased capital stock per train mile, because you have fewer train miles in comparison with your capital outlay.

Mr. Sheean: While that is true, what we all know, with a reduction in train miles, you would naturally expect a very re-

duced revenue train mile basis; some showing would be made in the way that you suggest?

Mr. Lauck: If you just made it clear that it shows an increased capital cost, because you are all the time decreasing your train miles in order to get economical production.

Mr. Sheean: That is, the capital remaining the same and the mere change in train mile loading would change and shift this ratio?

Mr. Lauck: Yes, increasing your load you would have fewer train miles, but you ought to have decreasing cost per ton mile, that is, other things being equal.

Mr. Sheean: 37 simply shows the practice of charging permanent improvements to operating expenses previous to 1907. Exhibit 38, Mr. Lauck?

Mr. Lauck: The primary object of that exhibit is to further supplement and give whatever strength is possible to show that increased operating costs have not been due to firemen, but in a large measure attributable to increased depreciation charges, as affecting the total operating ratio.

Mr. Sheean: That is because of the changed method of accounting prescribed by the Commission in 1907?

Mr. Lauck: Yes, probably in accord with the recognized orders of the Commission.

Mr. Sheean: And with the change of base as to what went into operating expenses in 1907, and what went into operating expenses since that time, it necessarily follows that the operating expense account of the company kept in accordance with the changed rules is not comparable in the two periods?

Mr. Lauck: No, except in a way—unless you want to consider the previous practices offset this practice, as Mr. Byram brought out, I think, in the direct testimony.

Mr. Sheean: If you do consider one as offsetting the other, then the value of this exhibit fails?

Mr. Lauck: No, not at all. The idea here is that these rules were promulgated, and the railroads endeavoring to adjust themselves to them, never having completely gotten to that point yet where they could adjust their accounts or especially the ratio of depreciation on the basis of their experience, it was several years before they could do so, and so from 1910 there has been a steadily increasing rate of depreciation, which would affect

the operating ratio as compared with the two or three years preceding.

Mr. Sheean: And as would markedly affect the entire period preceding 1907?

Mr. Lauck: I don't get just the point.

Mr. Sheean: I understood you to say, Mr. Lauck, the purpose of this exhibit was to show that the increased operating expenses in recent years was due to the fact that, under orders of the Commission, there was now charged to operating expenses items that were not charged previous to that time, and that it is not entirely due to the increased wages of engineers and firemen?

Mr. Lauck: Exactly.

Mr. Sheean: In other words, the account entitled "Operating expense," includes in the later years different items than it included in the period previous to 1907?

Mr. Lauck: Exactly.

Mr. Sheean: Turn to your Exhibit 39. You compare operating expense accounts as kept previous to 1907, that is, for a five-year period, with the operating account of the last five-year period, do you not?

Mr. Lauck: Yes, the average for the five years.

Mr. Sheean: Turning to page 6—

Mr. Park: Is that 39?

Mr. Sheean: Exhibit 39, yes, the sliced apple exhibit.

Page 6, Mr. Lauck, the second item on the table on page 6 is operating expenses, yearly average for the five years ending June 30, 1908. That item during the five-year period, as you have just explained by your last exhibit, is an entirely different item from the same item in the report in the last five-year period, is it not? Strike out the word "entirely"—is an item in which accounts and expenses were included in one period and not in the other?

Mr. Lauck: Yes, they are not uniform methods of accounting applying to each period, but I should think that it would be more unfavorable to the comparison in that period because of the things that were changed.

Mr. Sheean: Well, previous to 1908, hire of equipment was charged to operating expense, wasn't it?

Mr. Lauck: The net, yes.

Mr. Sheean: Previous to 1908, rent for tracks and yards and terminals was charged to operating expense?

Mr. Lauck: Yes.

Mr. Sheean: Previous to that time, rents of buildings and other properties were charged to operating expense, were they not?

Mr. Lauck: That is correct, yes, sir.

Mr. Sheean: And there were offsets against that for rents, car mileage, that are not now offset against the operating expense account?

Mr. Lauck: The net of those items, as I understand it, was charged to operating expense.

Mr. Sheean: There was charged, as you have pointed out, in your preceding exhibit, depreciation charges to operating expense—that is, what is now equivalent to a depreciation charge?

Mr. Lauck: Well, practically equivalent—probably more than equivalent.

Mr. Sheean: And during the two periods, the accounts, while the same in name, are made up on a different basis.

Mr. Lauck: While the same in name, they are subject to those variations. For all practical purposes I should think they could be compared.

Mr. Sheean: Then, is it your judgment that, with reference to the preceding exhibits that it really does not make any difference whether the charge now is made to depreciation, or whether it is charged to operating expenses, as shown in the preceding exhibits?

Mr. Lauck: Prior to 1907, the practice of charging depreciation to operating expense was general and was permitted by the Commission. In addition to that, large charges were made for permanent improvements and additions and betterments, or extensions, to operating expenses, which was not prohibited by the Commission. Since that time, in 1907, although neither the cost of equipment, nor the operating expense are strictly comparable, the idea in the preceding exhibit was that depreciation was to show that there had been, during the last three or four years,—the railroads gathered up their depreciation, and had increased their operating ratio by doing that; so from 1907 to 1910 very little depreciation was charged.

From 1910 to 1914 we are getting the cumulative effects of

the depreciation that should have been charged from 1907 to 1910, and, in a great many instances, prior to 1907. That is, the Commission now permits them to go back of 1910 and to pick up appropriations prior to that time.

Mr. Sheean: Well, the fact does remain, as shown by your previous exhibits, that the item on this page, the second item, shown as operating expenses, does not include the same items during the second period—the identical items during the second five-year period—that it includes during the first five-year period.

Mr. Lauck: No, it does not; but I do not think it would impair the results of the comparison of operating expenses; the difference in the items.

Mr. Sheean: Now, arriving at the yearly average for the five years ended June 30th in each of these periods, if I understand your figures, you then take the total expenditures for road and equipment during the five years, and allow 4 per cent interest for one year upon that.

Mr. Lauck: The increase in cost of road and equipment between 1913 and 1909—subtracting additions made from income.

Mr. Sheean: Well, we discussed the other day the question of that deduction.

Mr. Lauck: Yes.

Mr. Sheean: But I could not get quite clear how, where you take a five-year period; that is a yearly average for a five-year period, on the operating revenues, and for the operating expense, and then take the total expenditures or total new investment, and allow one year's interest on that—that is, let me make clear to you what is bothering me: if, through a five-year period of time I have made a total investment of $50, doing that by an investment of $10 each year, each of these other items being carried out on the yearly average, putting in $10 each year, I would pay, if I borrowed the money, four years' interest on the first year's money, three years' interest on the second, and so on. I do not quite follow you here in taking the entire amount invested during a five-year period and figuring one year's interest on it, where the other is a yearly average.

Mr. Lauck: The point is not that. Granting the one year's interest is not granting it for five years, but the object is to show

that during this period there have been certain revenue gains, and after satisfying all capital costs, that it had been necessary to satisfy in 1909; that, during the intervening period, you have increased your outlay for capital so much; then the revenue gain has been so much to each year; now, to each subsequent year you will have to allow return on that increased capital investment.

Mr. Sheean: Well, why wouldn't you have to allow during the period that you are getting capital?

Mr. Lauck: Well, that is already covered in the interest on funded debt during that period.

Mr. Sheean: But now you deduct the interest on funded debt when you come down to there "net amount available for distribution."

Mr. Lauck: On the table on page 6 I think the item "deductions, except interest on funded debt."

Mr. Sheean: Well, yes, "except interest on funded debt," that you do not deduct?

Mr. Lauck: The difference between $52,000,000 there and $350,000,000, and the difference between 78 and 472 in 1913 would in each year cover the interest on funded debt and all capital disbursements, and the amount 96 is the net increase of all other deductions, interest on funded debt and for all corporate purposes. That is the net increase. That is, if you carried the subtraction down there, which would be $308,000,000 in 1909, $398,000,000 in 1913, you would have the net difference or net increase.

Mr. Sheean: Well—

Mr. Lauck: That is, if all the capital required during that period were provided for out of this funded debt, this amount available for funded debt for emergency reserve, for appropriation for property, and so on.

Mr. Sheean: But I understood you to say you had allowed all the deductions here except interest on funded debt?

Mr. Lauck: Yes.

Mr. Sheean: Then if you do not make any allowance for interest on funded debt, who is paying the interest on this $1,000,000 during five years?

Mr. Lauck: That is all allowed for in the difference between the other deductions and gross corporate return. That is,

after making deductions except interest on funded debt and the appropriations for reserve or other corporate purposes, the difference between that and the gross corporate income is the amount which you have available for all corporate purposes.

Mr. Sheean: Well, then, we have this $96,000,000 available for funded debt?

Mr. Lauck: That is the increase you have available, and the increase is available to meet any additional capital requirements that you may have made during that period, any additional capital outlays. That is, say the funded debt—just to make it clear—say your interest on funded debt and the amount available for all corporate purposes after deducting the other deductions in the income account was $400,000,000 in 1908—was $426,000,000 in 1913, you would have an increase of $26,000,000 available for funded debt and other corporate purposes, out of which you would find it necessary to pay interest this year and all subsequent years for which the capital was used in additional capital commitments made during this period.

Mr. Sheean: Well, Mr. Lauck, just what do you deduct there? You say "except deductions." You allow the deductions to be made from the gross corporate income, except the interest on the funded debt?

Mr. Lauck: Well, the deductions for the hire of equipment, rents and lease of road, and the other items which appear in the income sheet as being deducted from gross corporate income, other than funded debt, and interest on short time paper that has maturity, I think, according to the rules of the Commission, under one year.

Mr. Sheean: But you do not permit as a credit or as a deduction the interest shown by these reports as having been paid on the funded debt?

Mr. Lauck: That is what I want to get the difference between. I make these deductions for the purpose of seeing what is available for capital, and finding out what is available for capital in 1908, what is available for capital in 1913, except short time paper and bills receivable and current accounts, I take the difference between that (which is $96,000,000 in this table on page 6); then that $96,000,000 is the net increase in the amount available for all capital in 1913 as compared with 1908.

Mr. Sheean: Yes.

Mr. Lauck: Then out of that must be paid interest on additional capital committed during that period.

Mr. Sheean: You must pay interest on the capital committed during that period?

Mr. Lauck: Yes.

Mr. Sheean: And that additional capital is $1,000,000?

Mr. Lauck: Yes.

Mr. Sheean: And you have in this way made no allowance for the payment of interest on the $1,000,000 during that five years?

Mr. Lauck: That has been paid for out of the amounts from which I deducted the increase. That is, say, in 1908, the difference between the gross corporate income and the deductions for short time capital requirements would be 308. In 1909, say, it would be 308 or 309, whatever it might be, 1910. It would be cared for each year.

Mr. Sheean: On the assumption, that is, that it was all covered in the difference between short time paper during that time?

Mr. Lauck: No, on the assumption that it was funded debt, because the amount left after these deductions for short time paper would necessarily have to pay all funded debt charges and all other capital charges.

Mr. Sheean: But, as I understand—

Mr. Lauck: I have provided for that capital in the intermediate stages, and it is the increase in 1913 over 1908 that I am getting the net increase in revenue available for additional capital.

Mr. Sheean: I do not understand yet, Mr. Lauck, how you can deduct during this time, as you say you do there, or exclude from the deduction the interest on the funded debt.

Mr. Lauck: After the funded debt is paid of a corporation—or let us take, according to the methods of accounting of the Interstate Commerce Commission. After other deductions from gross corporate income and interest on funded debt, you have then the net corporate income remaining, which is for the benefit of the stockholders, which may be disposed of by them for dividends or for appropriations for property, or reserves. Then, starting with the gross corporate income and making deductions, except interest on funded debt, after you have made

those deductions you have left a remainder of $308,000,000 in 1908, which would cover the interest on funded debt and such other amounts as may be left over and available for the stockholders. If you carried it to 1910 you would have the same; 1911 the same; 1912 the same. Then, when you get to 1913, pursuing the same policy, you have a difference or an increase of $26,000,000 in that amount, which is available for interest on funded debt and for the use of the stockholders.

Mr. Sheean: Yes.

Mr. Lauck: And out of that increase then (comparing the additional capital outlay during this same period) if you have made any additional capital outlay you must pay the interest charge on it.

Mr. Sheean: Yes.

Mr. Lauck: So they are satisfied all the way through. It is the difference of the net amount available to capital, either stockholders, funded debt, or whatever it may be.

Mr. Sheean: The Interstate Commerce Commission, however, after arriving at the gross corporate income under their method of accounting, permit certain deductions, which include among other things the interest on funded debt?

Mr. Lauck: Yes.

Mr. Sheean: By following the Interstate Commerce Commission form instead of excepting from that the interest on funded debt, what would be the result on this table?

Mr. Lauck: It would be identically the same. After capital requirements—coming down the income account, you have certain items deducted, which cover short-time paper, or hire of equipment, or lease of roads; after you have deducted those from the gross corporate income, what have you left? You have left all the funds out of gross corporate income for the payment of interest on funded debt and for payment of dividends to stockholders, and for the payment of appropriations for reserves —whatever the stockholders may wish to use it for. Then, that is the total amount available for capital in any form, either in funded debt or through the investments of the stockholders. Taking the difference between that, if there is an increase, you get the increase available for capital; if, during any period, there has been an increase, then you naturally inquire where is the additional investment. If there has been the additional

investment, of course, it should receive a return. I have taken identically the Interstate Commerce Commission form.

Mr. Sheean: But have excluded from it the deduction of interest on funded debt?

Mr. Lauck: No, not at all.

Mr. Sheean: Well, then, the line is misleading, "deductions, except interest on funded debt"?

Mr. Lauck: Well, I have excluded "except interest on funded debt," in order to get what remained for interest on funded debt and other capital requirements.

Mr. Sheean: Then when you get $96,000,000, do you get what is available for funded debt as well as other capital?

Mr. Lauck: Oh, yes, exactly.

Mr. Sheean: And that $96,000,000 available is spread over —that is the average during this five-year period?

Mr. Lauck: Yes.

Mr. Sheean: Now then, in making your computation, you do, or do you not figure in this way, that that $96,000,000 had interest paid upon it during this five-year period?

Mr. Lauck: Not at all.

Mr. Sheean: Not at all?

Mr. Lauck: No.

Mr. Sheean: No. Now, then—

Mr. Lauck: If I understand your question.

Mr. Sheean: If they borrowed the money—borrowed the average of the $96,000,000 per year, they would pay interest during the five-year period on that amount, would they not? $96,000,000 on the first—the first $96,000,000, they would have five years' interest to pay on it?

Mr. Lauck: Not at all. That is the income. They were not paying anything on the income. That is part of the income of the road.

Mr. Sheean: Yes, that is the income of the road, and if they borrowed that $96,000,000, thereby increasing the income, they would not have to pay any interest on it the first year they borrowed it.

Mr. Lauck: That would be provided for, Mr. Sheean, by the interest on funded debt, which would be deducted from the gross corporate income.

Mr. Sheean: Yes, which would be deducted, and which the Interstate Commerce Commission permits to be deducted.

Mr. Lauck: Yes.

Mr. Sheean: But which you do not deduct?

Mr. Lauck: Oh, yes, I deduct that, as I have endeavored to explain. It is all covered in the deductions.

Mr. Sheean: Well, then, what does the line mean, "Deductions except interest on funded debt," does that mean that you do or do not deduct the funded debt shown—the interest on the funded debt shown in the Interstate Commerce Commission's report?

Mr. Lauck: I deduct all other deductions except interest on funded debt to get the remainder—get the difference between those deductions, in order to see what was available for capital.

Mr. Sheean: And, arriving at what was available for capital, the amount thus arrived at would have to pay interest on the funded debt as well as upon other borrowed capital?

Mr. Lauck: If it were maturity longer than one year, or if it were additional investments by the stockholders. But, the $96,000,000 is the net increase in that amount chargeable for that purpose.

Mr. Sheean: Well, now, Mr. Lauck, this whole table 39 is an effort to ascertain the investment made during the last five-year period?

Mr. Lauck: Yes.

Mr. Sheean: And segregates that from the previous investment of the carrier?

Mr. Lauck: Yes. In order to get my net increase in capital—

Mr. Sheean: And to endeavor to ascertain, if you can, whether that specific $1,200,000,000 that went in in the last five years earns specific sums of money?

Mr. Lauck: I have allowed that 4 per cent interest.

Mr. Sheean: You have allowed that last $1,000,000,000; but in getting at the increased revenue of the system as a system, you have assumed, have you not, that this last $1,000,000,000 that went in made a change in operating income of the entire system?

Mr. Lauck: I have assumed that this capital which went in in the last five-year period, working in conjunction with labor

and other factors, has produced an increase in income, a part of which has been due to increased operating efficiency, part to labor efficiency, and, of course, the fundamental conclusion I draw is that labor should participate.

Mr. Sheean: Let me see if I understand the basis of the table here. Now, on the assumption—bringing it down to a case that I can understand again—that I have been making small investments, $100 a year for nine years, until I get $900 into a plant—a mining plant, we will say—and I have received no returns at all—an entirely reasonable assumption thus far—

Mr. Lauck: Yes.

Mr. Sheean: But, now, at the end of the tenth year it is suggested by putting in this concentrator here, and levying an assessment of $100 on me, as a stockholder, that with the increased efficiency brought about by that $100, making my capital investment $1,000, that I will get interest on the entire $1,000 that I then have in. Now, by taking your table and following your method, you would say that the last $100, plus the efficiency brought about by that added investment, that it earned the entire income of $100 per year, and therefore—

Mr. Lauck: No, not at all. You do not understand the object I am getting at.

Mr. Sheean: Let me put it at the end of nine years, instead of having earned nothing, that I was then getting, upon my $900 investment, $50 in the way of returns. I put in another $100 and at the end of the first year I get $100 in dividends instead of the $50 I had before. You take my net income here of $50, at the end of the ninth year, and my net income of $100, at the end of the tenth year, and the difference between them, $50 you carry out ao additional capital invested in the last year?

Mr. Lauck: During the last year.

Mr. Sheean: During the last year?

Mr. Lauck: The difference between the two years.

Mr. Sheean: The difference between the two years?

Mr. Lauck: Yes.

Mr. Sheean: And, do you know then the amount available in that year after allowing 4 per cent on my last $100? There is available for distribution all of the difference between the $4 and the $50 additional that has been earned in the last year.

Mr. Lauck: Are you comparing the last year with the one immediately preceding?

Mr. Sheean: Yes, with the one immediately preceding.

Mr. Lauck: If you compare the last year with the one immediately preceding, of course, any increase in capital would be over last year. I do not exactly get your point as to increasing increment of investment also up to the final point in a mining venture, putting in a smelter and then beginning to get something?

Mr. Sheean: Yes.

Mr. Lauck: On the interest I have assumed that as soon as capital goes into this funded debt it would be paid a return out of this amount available. If it were a stockholder putting in capital, why, of course, in a new venture it might not be immediately returnable. I cannot conceive of a man buying stock in a railroad, in a new venture, though. I do not know of any case of that kind that ever occurred; I mean, the stock is usually given to them. It must go into the funded debt, and for that reason I think the additional increment to capital, say 10, 11, 12 or 13, is increased by deductions for interest on the funded debt.

Mr. Sheean: I did not want to make any differentiation at all between stockholders or investors in a mine, but simply to find the table, Mr. Lauck. Just return to the railroad, I suggest, and, assuming it did not have any stock at all, it was given to the one individual who owned it, if you please, but there is the $900 investment there.

Mr. Lauck: In 1909?

Mr. Sheean: In 1909, yes, and the net return in the way that you figure it there is $45 at that time. $100 additional is put in there, and the net return then is $100 at the end of the first year. By your method of computation, if I follow you correctly, we allow 4 per cent on that last $100, or $4. The difference in earnings between the two years was $55, $45 one year, $100 the other. You deduct $4 from the $55 and show that there was available interest last year, $51, for distribution.

Mr. Lauck: Yes, for the benefit of capital and labor.

Mr. Sheean: For the benefit of capital and labor?

Mr. Lauck: I have used 4 per cent because it was the current rate of return on borrowed capital.

Mr. Sheean: And that distribution for capital and labor

would be for distribution with the last $100 of capital stock put in, according to your way of casting the figures.

Mr. Lauck: I think I see the point of difficulty. All preceding capital that had been put in in the meantime has been remunerated.

Mr. Sheean: Then, there is underlying all of the sketches made in this Exhibit 39 the assumption that all capital that has gone in has been adequately remunerated in each of the periods of time that you cover?

Mr. Lauck: Yes, that is covered by the difference between gross corporate income and the deductions. That is covered by $302,000,000 there in 1908.

Mr. Sheean: Mr. Lauck, adverting again to the decision of the Interstate Commerce Commission, when the carriers produced tables to show that of the last billion dollars that they had put in from 1910 to 1913, that there had been no return, in which the Commission said:

"The carriers have stated repeatedly in testimony, in argument and upon their briefs, that the return upon funds invested in railway facilities since 1903 had been entirely inadequate, and that no return at all has been received upon the funds so invested since 1910, this is not an accurate statement of the facts. The revenues actually received by the carriers have been earned by the whole investment, and it is not correct to say that part of the investment made since a given date has earned no return."

Do you agree with the statement of the Commission that it is improper to segregate periods, and say that a particular part of the investment during a particular time has or has not earned a return?

Mr. Lauck: From what I have looked into of the operations of the railroads, I think that is very general with any railroad in this comparison, Mr. Sheean. That has been my practice. If I would consider actual returns that have been made to capital in the past, I would hesitate to say how many million dollars it might be. It might be hundreds and hundreds of them.

Mr. Sheean: Mr. Lauck, do you or do you not agree with the conclusion of the Commission that revenues actually received by the carriers have been earned by the whole investment, and it

is not correct to say that a part of the investment made since a given date has earned no return?

Mr. Lauck: I think in general I would agree with that. I have provided for the whole investment.

Mr. Sheean: That is, you have provided for the whole investment by assuming that.

Mr. Lauck: For the additional investment also.

Mr. Sheean: Mr. Lauck, have you also necessarily assumed that the property as it stood without this $1,200,000,000 had paid capital adequately up to a certain period, but was potentially able to continue to pay capital the amount of the burden which it had?

Mr. Lauck: If I get your question correctly, it is whether or not I considered capital had, prior to this time, been adequately rewarded?

Mr. Sheean: No, you said you had considered that.

Mr. Lauck: Yes.

Mr. Sheean: Don't you also necessarily assume that the plant, as it stood at that time, would continue and was able to pay the burden of capital throughout the remaining period? That is, in distributing only to the last capital that went in here, you have acted upon the assumption that the plant, as a plant, not only had paid at that time, but would continue to pay the burden upon it, too?

Mr. Lauck: Yes. I think that is true.

Mr. Sheean: You think that is true?

Mr. Lauck: Yes.

Mr. Sheean: So that, without the investment of this additional money, there is underlying all of your assumption, without the investment of this $1,200,000,000, that the plants and properties had not only paid capital in full, but, standing as they were, were fully able to continue to pay?

Mr. Lauck: I must assume that. That is, if I assume that the financial management of the road had been proper, I would have to assume that; I would have to assume that they had properly invested the capital, which may be an erroneous assumption, which I have no doubt it is.

Mr. Sheean: Independent entirely from any managerial ability or wisdom, isn't it the fact that changed conditions of operation, changed demands of the public, changed form of

equipment, necessitate, in practical operation, investment of additional sums of money, to make available at all the other plant and equipment, to keep it as a going concern?

Mr. Lauck: Undoubtedly yes. We discussed a great deal of that, in the way of terminals and elevated tracks and unproductive as well as productive investments.

Mr. Sheean: Well, is it, Mr. Lauck, a proper way of figuring, to attempt to ascertain whether or not the investment in a particular track elevation project, separately considered, does or does not return money?

Mr. Lauck: As compared with the whole plant. I should think it ought to be compared as an integral part of the whole plant. Just like a lot of the capital which has been invested since 1910 may be unproductive now, but may become more productive in the future. You would have an increasing return on the things that I have mentioned.

Mr. Sheean: What you have done in this table of comparisons is to take the capital invested during the last five-year period and segregate that, as well as you can, and, by comparison with the gross income of the same carriers, during the preceding period, and the last period, have said that this additional capital is adequately provided for, whether it was by virtue of increased traffic on the old plant, or by general greater efficiency of the entire plant, or from what source?

Mr. Lauck: Assuming all the time that, by the payment of fixed charges, a railroad is solvent, that all previous capital had been compensated in the way that it was intended it should be.

Mr. Sheean: On that same table, at page 6, as I understand the accounts of the Interstate Commerce Commission, there has been an effort made, since 1907, to ascertain revenue from operations by a separation of accounts, has there not—keeping that separate from income, from other sources?

Mr. Lauck: Yes.

Mr. Sheean: And in the manner in which the Interstate Commerce Commission has made that separation, the first two items on your table, operating revenues and operating expenses, would show what the Interstate Commerce Commission designates as revenue from operation?

Mr. Lauck: From the actual operation of the property—the total net revenue.

Mr. Sheean: Then, the Interstate Commerce Commission next requires that taxes shall be deducted from the net revenue from operations?

Mr. Lauck: Yes, sir.

Mr. Sheean: In that manner determining the income from operations?

Mr. Lauck: Exactly. Which is the net there, after deducting taxes, as you say.

Mr. Sheean: Yes. And that is shown as $67,000,000, practically—that is the sixth line?

Mr. Lauck: It is an increase of $67,000,000.

Mr. Sheean: An increase of $67,000,000?

Mr. Lauck: Yes.

Mr. Sheean: Now, that is what is known as the income from operations?

Mr. Lauck: Yes.

Mr. Sheean: Now, Mr. Lauck, you have shown here, by this table, as to these carriers, that there has been invested $1,141,000,000 during that period of time, practically?

Mr. Lauck: I beg your pardon. I was looking at something else, Mr. Sheean.

Mr. Sheean: $1,141,000,000?

Mr. Lauck: Yes.

Mr. Sheean: Six per cent on that $1,141,000,000 would be more than the entire increase in net operating income during that period, wouldn't it?

Mr. Lauck: Undoubtedly; but what is the other income? The other income is the income from the investments of the railroads.

Mr. Sheean: Yes. Now, I think you said the other day, Mr. Lauck, that in this other income which you have included here, you took the dividends which the underlying company of the Oregon Short Line, declared, and you counted that in the net operating income of the subsidiary of the Oregon Short Line?

Mr. Lauck: Yes.

Mr. Sheean: Then, when that subsidiary passed the dividend into the treasury of the Oregon Short Line, you again

counted it in the other corporate income of the Oregon Short Line?

Mr. Lauck: Yes.

Mr. Sheean: Then, when the Oregon Short Line, in turn, by its declaration of income passed it into the treasury of the Union Pacific, you counted the same money a third time?

Mr. Lauck: Yes.

Mr. Sheean: And, in the case of the Omaha Road, which you spoke of the other day, you first showed the income from operations of the Omaha Road of a certain amount, and then, when it was paid as dividends to the Chicago & North Western, you again counted it?

Mr. Lauck: Yes. That was a duplication, you will recall, I stated at the time I had been guilty of. That really does not amount to much. I have looked into that since. It is included in 1909 to 1913, from data I have at hand—it would amount to about $3,000,000 difference, even allowing the dividend on the Burlington, which, of course, cost the Northern Pacific and the Great Northern nothing, because they issued collateral trust bonds to cover that. But, even allowing that, it makes a difference of only $3,000,000 in the total.

Mr. Sheean: The fact remains that the Interstate Commerce Commission, in order to ascertain what the operating revenue of railroads is, has distinguished any fortunate investments in stock or bonds, or lands, or oils or timber, or any of the other things spoken of—in order to ascertain what the revenue from operations of the railroad, as a railroad is, has required the accounts to be kept and to be set up in a certain manner.

Mr. Lauck: And this follows the form.

Mr. Sheean: And this, in following the form, shows that the entire increase during that time in the income from operations was $67,000,000?

Mr. Lauck: Yes; but you cannot consider that as distinct.

Mr. Stone: That is all wrong; he is reading the wrong line; it is not $67,000,000; $67,000,000 is the other income.

Mr. Lauck: No, $67,000,000 is the net.

Mr. Stone: Is the net?

Mr. Lauck: Yes.

Mr. Stone: It does not say so in this. It says net $283,000,000.

Mr. Lauck: It is the difference Mr. Sheean is speaking about.

Mr. Stone: Pardon me.

Mr. Lauck: Mr. Sheean, that point as to confining it to the rail operations, I do not think you can do that for the reason that this other income has resulted from the investments of the railroads in other properties—it may be other railroad properties. Of course, as a whole, it is other railroad properties. Now, that investment has been primarily made from surplus. Where an investment of that kind would be made from security issues and the return would be purely from the investment of capital, then, of course, labor would have no right to participate in that; but that has been made from surplus; that represents a very small part of the surplus investments which have been conserved; that is, there have been hundreds of millions of dollars that have already gone to capital.

Mr. Sheean: Mr. Lauck, I did not want to go into any effort to ascertain why the Interstate Commerce Commission made division to certain ways, further than to develop the fact that the Interstate Commerce Commission has decided to determine that certain income in properly income from operation, and that certain other income is not from rail operations.

Mr. Lauck: Well, just explaining that point, as I was, this other income represents the investment of surplus productive efficiency of past years, a small portion of which has been conserved; therefore, it seems to me proper to include it for the reason that labor, having participated in the production of that, should have some measure of participation in the results flowing from that. That is, the undistributed increment from past operations.

Mr. Sheean: But, you do not find any account of the Interstate Commerce Commission separately kept for accrued productive efficiency, do you, Mr. Lauck?

Mr. Lauck: No, not of accrued productive efficiency. I think it is clearly manifest but I do not find them keeping those accounts. Right there, Mr. Sheean, of course, following your point strictly, capital would not be willing to be remunerated, would it, from distinctly rail revenue? That is, I should not ask you a question; but I will state it in a direct way, that, if you would follow the point that you are making, that this rail

revenue should be the only revenue considered, why, then, I should think that capital would be exceedingly loath to hold to that view, because, probably, in the case of some roads, they would have very little return, if any, on the investment.

Mr. Sheean: Well, Mr. Lauck, the Interstate Commerce Commission has made an effort, going back at least as far as 1909, to distinguish rail operations from any other income, and to keep those separate and distinct, under very specific instructions, as to just what shall go into rail operations and what shall not.

Mr. Lauck: Yes, that is very true.

Mr. Sheean: And in the period since 1908, at least, the income from rail operations, kept under the system which the Interstate Commerce Commission has devised, shows that the increase of 1913 over 1908 is about $67,000,000?

Mr. Lauck: Yes.

Mr. Sheean: And during that period there has been this investment of $1,231,000,000 of additional capital. Now, it is true, is it not, Mr. Lauck, that the investment of additional capital since that time, as shown here, has been made in accordance with the instructions of the Interstate Commerce Commission, and includes only actual cash investments, in case all the instructions of the Interstate Commerce Commission have been complied with?

Mr. Lauck: I think so. I am assuming that all instructions are complied with in this table. I am taking the figures as they are and not questioning them at all. If you are going to pass on, Mr. Sheean, the point I want to emphasize there, though, is that labor has as much right to participate in this other income as it has in the rail income.

Mr. Sheean: Well, Mr. Lauck, just in that connection—I won't attempt to discuss with you the propriety or impropriety of the way in which the Commission has set up its accounts in order to ascertain what the income from rail operation is; but in just what respect do you figure that the employes, during the last five-year period, engaged in the handling of the engines upon the road or in the yards, have made any contribution to income which is not represented in the rail operation during that period?

Mr. Lauck: I was not thinking so much of the last five

years, although any surplus revenues which were carried from the year's annual operations to surplus would be part of the productive efficiency of the employes, and which went into the accumulated surplus and might be invested in the road; but most of this income, I think, was probably accumulated before 1907. There has been an immense increment from previous productive efficiency, from previous development or traffic and maybe from the location of the road, the growth of traffic and other reasons that capital and labor had nothing to do with; but, as a result of that, there have been immense funds accumulated which have gone into outside investments of the railroads. Now, there have been tremendous distributions of capital, hundreds of millions of dollars. This represents the small amount which has been conserved, and it would seem to me to be conceding only a small portion of what might be due labor, what they should have gotten, to give them a measure of participation in this. That is my point of view.

Mr. Sheean: Well, Mr. Lauck, we come now to the question of why the five-year period of 1903 to 1908 was selected here for comparison with the other five-year period. Isn't it a fact that if you took the comparison of the next five-year period, or any other five-year period there, that there would be a changed showing?

Mr. Lauck: I have similar exhibits to this prepared for 1900 to 1913, 1890 to 1913, but I did not submit them, because I wanted to save time, and because I thought it would be sufficient. This grants every concession to the railroads' side of the contention, and a longer period for productive efficiency and operating efficiency would show much of that sum available for the increased productivity of labor.

Mr. Sheean: If you took the period from 1910 to 1913 what, if any change, from your general knowledge of the figures during that time, would the operations during those years—would you say would be made in this apple?

Mr. Lauck: If I took from 1910, the last three or four years would probably be a somewhat smaller amount of net revenue available from rail operations, and probably the same comparison as to other income. Probably more, because some of the railroads have given away immense amounts in the last year,

like the Union Pacific with the $35,000,000 dividend or the $100,000,000 dividend.

Mr. Sheean: Mr. Lauck, don't you know it to be a fact that taking the years from 1910 down to and including 1913, that the income from rail operation has been less and less from year to year?

Mr. Lauck: I stated that. I said there probably would be less net income from rail operations, but it would be amply compensated for in the other increase.

Mr. Sheean: On the theory on which this separation is made here, if you go back to the time of the last wage adjustment, and compare it with the present time, you will arrive at the conclusion, will you not, that there has been, during each of the succeeding years, a less and less productivity from rail operations?

Mr. Lauck: Yes, less and less return from rail operations, assuming your point of view as to 1910 being the marking point. 1910 being an exceedingly prosperous year in railroad operation, marked by high net revenue, which I suppose has not been equalled since, you would lose in comparison.

Whether or not it would show that effect, decreased productivity or increased business, it would seem to me it would probably be due to the latter and there would be less net return from rail operation; but I do not hold that you should confine the comparison to actual rail operations, as I have been repeatedly saying in order to make my position clear, and I don't think it would affect the result very materially at all.

Mr. Sheean: The fact remains that, during the five-year periods you have selected here, you have selected in the last period, the last five-year period, a period which includes two very prosperous years, for comparison with a period which includes all of the figures of the panic of 1907, and its result during following years?

Mr. Lauck: That may be true. There was no such object in making the comparison. As I have stated, I have got other exhibits which I have refrained from submitting covering the previous periods, which would be much more favorable to our side of the contention. The five-year period was selected to get an average, and not have any comparison based upon one year.

realizing that probably this would be met with a great deal of opposition or criticism.

Mr. Sheean: But you have made no figures showing the period from 1910 to 1913?

Mr. Lauck: No, I have not.

Mr. Sheean: If you made the comparison, even with the period ending with the fiscal year ending 1909, with the succeeding five-year period, while not able to state in dollars and cents, you know that would be a less favorable comparison than this?

Mr. Lauck: You mean with 1913?

Mr. Sheean: Yes.

Mr. Lauck: It probably would be, owing to the decline in net revenue, and, of course, in 1914 it would be much less, but this would be based on productive efficiency, I should think.

Mr. Sheean: That is because of the fact pointed out by the Interstate Commerce Commission in connection with the selection of five-year periods that the years 1906 and 1910 stand out as relatively more prosperous years than the years 1903 and 1913, and that, as a matter of fact, the prosperity of 1906 extended almost through the fiscal year of 1907, and the prosperous periods of 1903, 1907 and 1910 were followed by years of dullness and inactivity. The fact that there are these ups and downs in these different periods makes it possible, as the Interstate Commerce Commission points out, by taking almost any particular five-year period and comparing it with another five-year period, to make the up or down showing dependent upon whether you put two prosperous years in the one period for comparison, with two lean years against it. Isn't that true in a general way?

Mr. Lauck: That may be true in a general way. That is true in a general way, but no such object as that was considered—

Mr. Sheean: I did not make any suggestion as to that, but I am simply trying to get at whether the fact that the Commission points out, that if you take any two fat years in comparison with a five-year period which includes two lean years, that you can get either an up or down result, depending upon the periods that you select?

Mr. Lauck: Of course, if that were true, if you had a decline in business it would affect the net revenue, but, if you had

a decline in business, the men also have a decline in employment. The tendency is for the—the operation of the roads has shown distinctly the past year increased efficiency from the men in depression than in times of prosperity.

Mr. Sheean: But these tables have nothing to do with the question of efficiency, this particular exhibit?

Mr. Lauck: So far as affecting the net return to the railroads, and comparison with the labor outlay by the roads, they would be very distinctly material.

Mr. Sheean: It is reflected in the fact that the net revenue is less in the last year?

Mr. Lauck: No, it is reflected in the fact that if your net revenue is less, the amount that you get for freight traffic is the same, or, if your traffic is less, it is moved, as a rule, with greater efficiency than in times of great traffic. For instance, in 1910, when the constant declaration of the railroad managers was that more revenue meant increased operating cost, and it was last year that the tendency is for the net to decrease owing to the growth creeping up of the operating cost and absorbing a larger proportion of the gross. In times of depression and slackening of traffic, you have a very pronounced increase in efficiency, I think, because the more efficient men are retained, and every effort is made to economize.

Mr. Sheean: Measured in terms of revenue, if you do measure it in terms of revenue, the fact remains that, since 1910, continuously, to date, the net revenue from rail operation has been growing less and less?

Mr. Lauck: There has been a tendency in that direction, yes

Mr. Sheean: That, as well as the tendency that money available for net revenue from operation has been less and less through all these years?

Mr. Lauck: I think that is true. I know that is the tendency asserted by the financial and railway journals. I have made no such comparison.

Mr. Sheean: Mr. Lauck, just in leaving this exhibit, it does happen that the exhibit here, as prepared throughout, contains for the last period a fat period which the Interstate Commerce Commission has said would include two fat years for comparison with any of the other years: that if we select the five-

year period from 1909 to 1913, inclusive, it will include the two prosperous years of 1910 and 1913?

Mr. Lauck: Yes.

Mr. Sheean: And, of course, you know from the statistics, that in the previous five-year period with which you are comparing, you have two lean years?

Mr. Lauck: We have part of the year 1907 and part of the year—the whole, practically, of the year 1908—or we have the whole of the year 1908 and part of the year 1909.

Mr. Sheean: So that, even going back one year on either of these five-year periods that you have selected, there would be a marked change in the result?

Mr. Lauck: It might have affected results. I don't think it would have affected them in a way that would have been disadvantageous to the contention. I have never worked that out.

Mr. Sheean: If you will turn back just a moment to page 12 in the same exhibit, before leaving it. That is prepared, as I understand it, on the same basis as the other one?

Mr. Lauck: All prepared on a uniform basis, yes, sir.

Mr. Sheean: And, the net income from operation, under the rules which the Interstate Commerce Commission has provided, show that as to these ten carriers that there has been an increase in the net income from operation of $32,817,000?

Mr. Lauck: Exactly.

Mr. Sheean: And as to these ten carriers there has been an increased outlay during that time of $676,000,000?

Mr. Lauck: Yes.

Mr. Sheean: So that, as to the ten carriers which you have selected, the entire increase in net income from operation would not pay five per cent interest on the added money put in in that time?

Mr. Lauck: If you limit it to that, which I would not do, of course.

Mr. Sheean: Mr. Lauck, we will turn to Exhibit 40, please. The first part of your tables here, as I understand them, are merely comparisons with the gross moneys taken in by the railroads?

Mr. Lauck: Yes, that is simply the relation between gross revenues and outlay for engineers and firemen.

Mr. Sheean: Do you know about what part of the gross operating revenue the firemen already receive?

Mr. Lauck: We could tell that from Exhibit—the ratio cost of firemen to total operating revenues, it is about—I should say about 4 per cent. Something like that. That is just my recollection. About 4 per cent.

Mr. Sheean: And the increase which you have set out here has been with reference merely to the gross operating revenue?

Mr. Lauck: Yes.

Mr. Sheean: About what is the percentage, in a general way, of the net income from operations to the gross operating revenue?

Mr. Lauck: It is—I don't know, Mr. Sheean. I don't know what the percentage would be. It is considerably smaller, of course.

Mr. Sheean: Well, under the way in which the accounts are kept by the Interstate Commerce Commission, this operating revenue—the total amount that is taken in has charged against it all operating expenses.

Mr. Lauck: And taxes.

Mr. Sheean: And taxes. Well, I think you said here the other day something about the operating ratio constantly going up.

Mr. Lauck: Yes. Well, according to the operating ratio it would be about—the net, not including taxes, would be about 22 per cent, or about 31 per cent, I think. The operating ratio is about 69, now, I believe, something like that.

Mr. Sheean: And with taxes, say, in a rough way, it means it has been 70?

Mr. Lauck: Yes, about 30 per cent.

Mr. Sheean: So that the gross operating revenues here, there is about 70 per cent of this larger box is taken off here by the present payments in the way of salaries and wages?

Mr. Lauck: All operating expenses and taxes.

Mr. Sheean: That would reduce the gross operating revenue to that extent.

Mr. Lauck: Yes; the reason it is shown in this form was, if there is any acceptance of the units of productive efficiency, of course the revenue gains would affect the aggregate and not

the net, after all other factors had been subtracted from the aggregate.

Mr. Sheean: You make the comparison in these tables with the whole dollar that is paid?

Mr. Lauck: Yes, the whole dollar of revenue. Or whole dollar of accumulated surplus.

Mr. Sheean: And of course that comparison would be changed from year to year by any change that there might be in the mere volume of the business?

Mr. Lauck: It would be reflected in your volume there, by your freight rate or by the efficiency of your employes, or any other factor that entered into the operation or management of the railroad?

Mr. Sheean: Now, the second part of it is to show a comparison with accumulated surplus, as I understand it, Mr. Lauck?

Mr. Lauck: That is correct, sir. That is the so-called "Free surplus."

Mr. Sheean: Now, that accumulated surplus, Mr. Lauck, is the same on all railroads, is it, the same system of accounting adopted as to what is surplus?

Mr. Lauck: Well, as far as I know, it should be, yes, sir.

Mr. Sheean: And that accumulated surplus represents the profit from operations that has accumulated through different years?

Mr. Lauck: Yes.

Mr. Sheean: Whether or not there has been any writing off because of depreciation might affect this accumulated surplus?

Mr. Lauck: That has already been written down by depreciation.

Mr. Sheean: That is, the depreciation that has accrued?

Mr. Lauck: That has accrued to date, yes.

Mr. Sheean: And that is on the assumption that the depreciation of one-quarter of one per cent that you spoke of here the other day further represents the actual depreciation, does it?

Mr. Lauck: I wouldn't say that—I would not make that reflection on the railroads of the West. That is one of the railroads that has been in financial difficulties, the Rock Island.

Mr. Sheean: I understood you to say the other day that

the matter of what should be written off for depreciation had not been determined under any system of accounting as yet.

Mr. Lauck: The Commission has left that, as I understand it, to the experience of the railroads. They are working out their experience now, but no established rate has been made.

Mr. Sheean: So that, when you say it has already been written off for depreciation, that is, such amount has been written off as a particular railroad has thought itself able to write off at a particular time?

Mr. Lauck: That is right, yes. There has been about $240,000,000 written off since 1907.

Mr. Sheean: Whether or not this accumulated surplus represents the present cash value of the property—whether it has either increased or diminished, is a matter that could be determined only by an appraisement of the properties. That is, the property may be worth a great deal more than the accumulated surplus, if it has enhanced in value, and it may be worth a great deal less than the accumulated surplus in case there has been obsolescence that has not been written off.

Mr. Lauck: Yes, and also the value of the surplus would depend upon what accounting practices had been followed prior to 1907. Some of the surpluses are not—well, there is no use going into the financial aspect of it.

Mr. Sheean: The matter of accumulated surplus here, as shown, is a matter of bookkeeping, profit and loss, is it?

Mr. Lauck: It is profit and loss, and surplus, yes.

Mr. Sheean: And you have taken what the book showing in that respect is, of the different railroad companies? It may be represented either by the property generally—may in fact exist in some form of separate security, or may be, as this is, purely a bookkeeping proposition, is it, Mr. Lauck?

Mr. Lauck: I think it is, yes. There is about $208,000,000 of cash available by this group of railroads. I don't know what the working assets are. Of course, the cash would be part of the quick assets; and then they have other working assets. But, of course, from railroad to railroad, the profit and loss surplus all depends on what the financial management and the accounting practices have been. Some roads show a surplus that is absolutely nothing; that is worthless, I mean. Like the Rock Island Company is carrying the bonds of the Rock Island Railroad, which were worked off on them by the management of

the second holding company. In other cases, you have a cash surplus or a considerable part of cash. But it is a bookkeeping account.

Mr. Sheean: This first table at page 17 includes in it, if you have the Rock Island, or have you the Rock Island there included in the table of the roads? Yes, these railroads are as follows: "The Chicago, Rock Island & Pacific Railway." You just told what that actually—

Mr. Lauck: 37.

Mr. Sheean: You just told us what that accumulated surplus there consisted of, and yet you have included that surplus which you have just described in setting up this box illustration.

Mr. Lauck: I have taken them as they are. For instance, the surplus has been used for the purpose of declaring dividends by the same system of bookkeeping. Take on the Alton; they sold bonds on the Alton, and declared dividends out of the bonds, and wrote up the surplus from previous investments.

Mr. Sheean: Oh, and I see you have also included the Chicago & Alton as one of the railroads having a surplus out of which you propose to pay these wages.

Mr. Lauck: I have taken them as they were reported by the railroads to the Interstate Commerce Commission in all these statistics, not questioning their methods. You asked me the question as to what this surplus really was. I have then gone into an explanation of it.

Mr. Sheean: And it was the purpose of this exhibit, Mr. Lauck, to show that the railroads had available this money with which to pay this increase of wages to the men.

Mr. Lauck: That is the primary purpose. I think they have the money available.

Mr. Sheean: And in getting up the figures as to what the accumulated surplus was, you have included in the figures the two railroads whose particular surpluses you have so graphically described here?

Mr. Lauck: Yes, I have taken them exactly as they reported.

Mr. Sheean: And in the way of treating the accumulated surpluses, whatever the book amount may be of all the railroads, is treated as available for the entire group of employes?

Mr. Lauck: Yes.

Mr. Sheean: Now, on that same table which is shown as page 16, "Accumulated Surplus of Fifty-three Railroads," now your detail apparently at page 31, does not follow the same groups as shown in the boxes. Well, I don't know that that makes any difference, Mr. Lauck.

Mr. Lauck: The figure is correct. After I got beyond the ten roads, I took fifty-three, and then, as I could, I added others as it became known that they were in the movement.

Mr. Sheean: Now let me see if I understand your table at page 29. You have totals for eighty-one representative railways. Taking all of the accumulated surplus which has accumulated on those eighty-one western railroads from the time they were built and organized, and assuming that there was now available in actual cash, in order to pay a 10 per cent increase to the engineers and firemen on these roads, it would take 1.16 per cent of the entire accumulated surplus?

Mr. Lauck: 10 per cent, yes.

Mr. Sheean: I think you said that the engineers and firemen were about 30 per cent of the payroll of the employes engaged in conducting transportation, or about—

Mr. Lauck: I don't remember the payroll.

Mr. Sheean: They are about 12 per cent, I think you said, of the entire labor cost.

Mr. Lauck: Yes, I won't dispute your statement as to that.

Mr. Sheean: About 12 per cent of the entire labor cost of conducting transportation. And 5 per cent increase to the firemen would require 58 100 of 1 per cent. So that, if you gave an increase of 5 per cent to all employes, that would produce eight times 58—something over 4 per cent. That is true, is it not?

Mr. Lauck: That is true.

Mr. Sheean: Now, I suppose that the return which a railroad company could receive on money which it had, is on practically the same basis as money which it has to borrow?

Mr. Lauck: You mean money which the railroad has accumulated?

Mr. Sheean: Yes.

Mr. Lauck: Yes, I should think so.

Mr. Sheean: And that is if these eighty-one railroad companies had available in cash and invested all of their accumulated surplus that they have accumulated through all these

years, at 4 per cent (the same rate you have used in the other tables) that accumulated surplus at 4 per cent interest thus appropriated and set aside would not, on your tables here, produce enough money to pay 5 per cent increase to all labor?

Mr. Lauck: To all labor?

Mr. Sheean: To all labor.

Mr. Lauck: I never have,—assuming that—

Mr. Sheean: Is it not perfectly simple, if your table is correct? You say a 5 per cent increase to engineers and firemen would take 58/100 of one per cent of all the accumulated surplus; and engineers and firemen are about 1/8 or 12 per cent of all the labor now employed. Eight times 58/100—why you would have to get 4.64 per cent on all of your accumulated surplus to pay that 5 per cent increase, wouldn't you?

Mr. Lauck: According to that method of computation.

Mr. Sheean: What is your method of computation?

Mr. Lauck: According to my method of computation. Therefore, certain parts of the surplus must be yielding immediate return, because the other income indicated more than that.

Mr. Sheean: If you took all of the surplus accumulated by these eighty-one roads, and invested it, had it actually available, instead of these surpluses of the Rock Island and the Alton that you have talked about, if it was all available, and invested at 4 per cent, you could not realize enough money to pay a 5 per cent increase to the labor employed on the railroads, could you, if your table here is correct?

Mr. Lauck: No, if that is correct.

Mr. Sheean: That is all. Oh, yes, 41, Mr. Lauck. I think you said yesterday you took the number of men employed on June 30, 1913, which I think you said was a smaller number of employes—

Mr. Lauck: That got by me there.

Mr. Sheean: Well, any inaccuracy that there is in that way of simply counting payroll men, for the period ending June 30, 1913, would simply reduce the percentage of violations of the law per man, that Mr. Byram spoke of?

Mr. Lauck: Yes.

Mr. Sheean: Instead of an engineer or fireman once in every eighteen months being on the road longer than sixteen

hours, it would extend that period on averages if the employes are in fact more numerous than shown here?

Mr. Lauck: Yes.

Mr. Sheean: I think that is all, Mr. Lauck.

RE-DIRECT EXAMINATION.

Mr. Stone: Mr. Lauck, coming back to your Exhibit 21; on that page 2 would the mileage as talked about by Mr. Sheean affect this increase in any way?

Mr. Lauck: I don't think it would at all, no, sir. I have never been able to get that contention of Mr. Sheean.

Mr. Stone: But your Exhibit 21 does show clearly, doesn't it, that the increase in freight train miles has not kept pace with the number of ton miles?

Mr. Lauck: Yes, sir, very conclusively.

Mr. Stone: That is the prime object—

Mr. Lauck: That is the fundamental contention as we have often, in the discussion mentioned, the movement of a larger amount of freight traffic with a fewer number of freight train miles proportionately.

Mr. Stone: Well, productive efficiency is shown by the ability of the company to move more tons with fewer miles, is it not?

Mr. Lauck: Fewer freight train miles. And with an added cost per mile probably, but a revenue gain which should more than compensate for the added cost.

Mr. Stone: Well, all this talk about the elimination of grades and curves and heavier engines, all tend to one thing, don't they, to get more work out of the engine crew? In other words, to increase the productive efficiency of each unit.

Mr. Lauck: It increases the productive efficiency of each road, and each unit.

Mr. Stone: That means more work out of the engine crew, or at least the men in the service think so.

Mr. Lauck: I have no statistics measuring that.

Mr. Stone: You spoke of the change in the manner of keeping accounts by order of the Interstate Commerce Commission. Why was it necessary for the Interstate Commerce Commission to order this done?

Mr. Lauck: There were all kinds of variations in accounts.

as I understand it. The accounts were practically worthless prior to 1907 for purposes of comparison and uniformity. Great variations in one road to another, or between different roads in their accounting practices. There was a general tendency toward uniformity, but the Commission, wanting to be able, as was just pointed out, to find out what really was the operation, of rail operations, or what was the result of the corporate management, promulgated these new rules after they had been authorized under, I believe, the Hepburn Law, in I think it was 1906.

Mr. Stone: Taking up Exhibit 23, just what is the object of this exhibit?

Mr. Lauck: The object of this exhibit is to show, as its title indicates, the operating efficiency of the road and of the men during this period, 1909-1913, the same as in the case of the preceding exhibit.

Mr. Stone: Your Nos. 22 and 24 are for different periods. That is all, is it not?

Mr. Lauck: Yes.

Mr. Stone: They are all on the same basis?

Mr. Lauck: The same point. Of course, in the latter period it shows a declining tendency, but the object is to show —they stand as an argument for the whole tendency.

Mr. Stone: I understand. Considerable stress was laid yesterday on switching locomotive miles. Just what effect does the locomotive miles charged to switching engines have on this in any way? Does it make any difference whether the switch locomotives run 40 miles or 400 miles a day? The engineer is paid by the hour, isn't he?

Mr. Lauck: I think there is an arbitrary allowance whereby six miles an hour or ten hours a day, or sixty miles a day for a switching locomotive is considered as a switching locomotive mileage.

Mr. Stone: Well, this arbitrary allowance is allowed to all switching engines, is it not, regardless of—

Mr. Lauck: As I understand it, yes.

Mr. Stone: Of the number of miles. It is just an arbitrary fixed by the railroads themselves, or by the Interstate Commerce Commission?

Mr. Lauck: By the Interstate Commerce Commission.

There is just one point, if it might be proper for me to mention it?

Mr. Stone: Yes.

Mr. Lauck: On page 11 of Exhibit 23—I intended to take it up when Mr. Sheean was examining me, but I overlooked it. In the text on page 11 there is a small supplementary table in addition to the chart, which shows for each $1,000 increase in compensation to freight engineers, or freight firemen, the corresponding gains in ton miles. It seems to me that that is the most significant thing in this period. That is, as has been so well indicated by Mr. Sheean, a tendency toward declining productivity in this period. But, if you consider it from the other standpoint, if you consider it from the standpoint that you have, say, a certain outlay for engineers and firemen in 1909, then, if you assumed your traffic remained constant, and you handled it by the same outlay in 1913, the difference in labor cost or outlay for locomotive engineers and firemen, each $1,000 additional that you put in, together with your better equipment, would yield a very much larger return. That is, you have got an increasing return per $1,000 investment as compared with 1909. Instead of, say, like a constant application of labor and capital to the land, according to the theory of economics, you get a decreasing return in the case of—this is exemplified by the special table—for each additional $1,000 invested, owing, probably, to the fact it was put into the heavier equipment, and you have a chance there to apply it to the heavier equipment, and the men on the heavier equipment. You have a constantly increasing return as compared with the first year of the period.

Mr. Sheean: Is that the same as the last $1,000 put into the concentrator that we talked about at the mine, giving that last coupling up of the machinery the credit for all the increased capacity?

Mr. Lauck: It would be the same. The last investment, of course, would be more productive than the preceding investments. It seems to me that is a very significant tendency.

Mr. Stone: In this Exhibit 23, you make the revenue bear all the expense of work trains and special service, and you also make the revenue miles take care of the switching, do you not?

Mr. Lauck: Yes. I am unable, as I have stated before, to find out what the non-revenue tonnage is.

Mr. Stone: All this is to the disadvantage of the showing of the engineers and firemen?

Mr. Lauck: About 20 per cent, so far as I know. That is, I have seen statements that about 20 per cent of the tonnage was company tonnage.

Mr. Stone: Why is it, Mr. Lauck, that there is no other basis for arriving at the daily wage of the individual engineer and fireman—why is it there is no such basis, I mean that is fair and equitable?

Mr. Lauck: Than the revenue train mile?

Mr. Stone: Yes.

Mr. Lauck: That would be because—just as it is the fairest element of cost is the basis upon which he operates and works and upon which he moves the traffic and is especially valuable for comparison with returns, because the added work, the more cars, the more load per car and the heavier train load is on the revenue train mile or locomotive train mile.

Mr. Stone: Why is it the daily wages shown by the Interstate Commerce Commission are recognized by all as being absolutely unreliable?

Mr. Lauck: It is due to taking one day in the year and comparing that to the total wage outlay for the whole year, and to variations in methods from one railroad to another in the method of arriving at the average daily compensation. For instance, I think it was in the Eastern case of the firemen—yes, it was in the Eastern case of the firemen, to illustrate differences that might arise, we had an average daily wage from the reports of the Interstate Commerce Commission which were gotten up in good faith by the railroads. Then the Pennsylvania Railroad submitted some data for another period of the year which showed an entirely different daily compensation, due to the fact that the traffic conditions were different and the number of men employed appearing on the payroll was different.

Mr. Stone: The fact remains that it is recognized by all parties as being unreliable, and even so recognized by the Interstate Commerce Commission, in view of the fact that they have changed the basis of the plan?

Mr. Lauck: Yes, owing to the protest of the representatives of the organizations of the men and the statisticians, and I do not know whether the railroads participated or not; I sup-

pose they did. I know the statistical bureaus have; that they have decided to make a change in this, and the new schedule for 1915 puts the wages upon an hourly basis and upon an earning basis, and the actual payroll is reported instead of the average daily compensation.

Mr. Stone: The Bureau of Railway Economics is supposed to be the heart of the railroads, is it not?

Mr. Lauck: I don't want to make any discrimination between statistical bureaus—it is one of the leading statistical bureaus of the railroads, I mean.

Mr. Stone: Of course, there might be a reflection on the other bureaus, but it is the one they keep at the seat of the government, in order to get things at first hand?

Mr. Lauck: It is one of their principal organizations for work of that kind.

Mr. Stone: During the period we have been going through, of the last five or six years, is it not a fact that the tonnage of passenger trains has materially increased on account of the change from wood to steel equipment?

Mr. Lauck: Yes, the tonnage of the train has increased and the tractive power of the locomotive has increased; but the number of passengers per train has not kept pace with the increase of service offered by the railroads and of course the engineers have had greater responsibility and heavier trains to handle, and the firemen also.

Mr. Stone: Then, would not that account, to some extent, with the reduction in passengers, for why the engineers in passenger service have not delivered to the railroads per one dollar paid out the same amount as before this period?

Mr. Lauck: Undoubtedly that does account for it; that is, they have a heavier train to haul and greater responsibility. Insofar as their work and responsibility is concerned, it has increased; but, so far as I have been able to see, the passenger traffic has not developed the units to go into the trains and of course the train mile earnings are less, due to this fact, and not to any lessening of the work of the engineers and firemen.

Mr. Stone: Neither is there anything in any of these reports to show what the overhead charge may have been to get the passengers?

Mr. Lauck: No more than the cost of passenger traffic,

which includes solicitation of traffic and advertising and so on, in a general way.

Mr. Stone: Yesterday, considerable stress was laid on the Arbitration Ward of 1910 to the Brotherhood of Locomotive Firemen and Enginemen. Is it not a fact that the increase was granted on the cost of living, and productive efficiency was not considered?

Mr. Lauck: As I understand the Firemen's Award, the basis of that Award, I have been told, was on the increased cost of living.

Mr. Stone: Well, in this Award of 1909—

Mr. Lauck: The Engineers' Award was an adjustment, as I understand.

Mr. Stone: The Engineers' Award was a compromise; there was no arbitration about it, it was through mediation; it was not an arbitration. In the Arbitration Award of the Brotherhood of Firemen and Enginemen, in 1910, is there anything in it to indicate that it was full and satisfactory, as stated by Mr. Sheean; that is, to the men—it might have been satisfactory to the railroads, but I am talking about the men?

Mr. Lauck: I should think the present proceedings were an indication of the fact that it was not satisfactory; but, so far as I know, it was not satisfactory.

Mr. Stone: Haven't you been told so repeatedly by the men?

Mr. Lauck: Oh, repeatedly, yes, sir.

Mr. Stone: Everything but satisfactory?

Mr. Laucks: As I say, the resultant demand for changes indicates that fact.

Mr. Stone: Coming down to that question of coal, which, according to the figures, they say is 100 tons less per $1,000 paid now than it was in 1909, do you believe it would be possible to make some of these firemen believe that they were shoveling less coal than they were five years ago?

Mr. Sheean: That is not involved in that question. It is merely on how much they are being paid for what they shovel—for $1,000 of compensation.

Mr. Stone: You may have kept him out enough hours to have him pay the compensation. It may not have been in miles.

Mr. Lauck: That would be a very significant factor, the time.

Mr. Stone: The only thing I fear regarding this coal is that you will find it demonstrated by these figures that they are not burning any coal at all; they just think they are burning it, and these reports of the railroads that they have increased the consumption of coal 60 or 80 pounds per locomotive mile is simply a play on figures and does not exist in reality. But, coming back to the question of coal, is it not a fact that the amount of coal handled by firemen is only one of many factors which entitle them to increased wages?

Mr. Lauck: Yes. I think the increased coal handled is an indication of increased physical work. Of course, the firemen, as I understand the working conditions, have practically the same working conditions as the engineers, and the same requirements, except the actual operation of the train.

Mr. Stone: He is held responsible for signals on his side, and all that sort of thing?

Mr. Lauck: Yes.

Mr. Stone: On many of the roads they require the fireman to read all orders and to be thoroughly familiar with the operation of the train?

Mr. Lauck: Yes.

Mr. Stone: You are not familiar with the duties of a fireman, are you—thoroughly familiar?

Mr. Lauck: Not in a way to be able to testify about it.

Mr. Stone: Yesterday, when Mr. Sheean was asking about sweeping the decks. If you have ridden on one of these modern "battleships," you would realize that he does not have much time to sweep the decks after she goes into action. It was testified in some cases that, with the mechanical stoker working to full capacity, and with the fireman shoveling coal as fast as he could, they managed to keep coal in her.

Mr. Lauck: Yes. What is the deck, Mr. Stone?

Mr. Stone: The deck used to be the floor of the cab back of the boilerhead. In the old days they used to have a broom and were supposed to sweep it off. Nowadays they do not furnish a broom at all, and if he has time to scrape it out with a scoop he is lucky. I also noticed he spoke about cleaning headlights. I have been in the game over thirty years, now—thirty

or thirty-three years—and I do not know of a time that the fireman ever was required to clean headlights, or that it was any part of his duty. Coming back to the question of coal, have you made any study in regard to the question of coal? I think Mr. Shean asked you yesterday if it might not be in regard to the better quality of coal being furnished at the present time.

Mr. Lauck: I have not looked into it and practically know nothing about the steaming qualities of coal, although I have heard a great deal about that.

Mr. Stone: The fact is that the theory propounded by a number of our best geologists is that the quality of coal is gradually deteriorating, for the reason that every cubic foot of gas and every gallon of oil that comes from the ground reduces the quality of the coal by just that many heat units and the result is that we are getting a poorer quality of coal today than we were years ago. In addition to that, many of the Western railroads do not furnish coal; they furnish real estate; about half of it coal and the rest of it sulphur or black scrap. I think we will be able to show, when the operating officials of the roads go on the stand, that it is a very common practice, when they burn this stuff, to clean out the fire box by taking out the grates and all, because they are melted right together, and put in a new set. So I cannot think that the quality of the coal has anything to do with the result of the number of tons of coal the fireman has to shovel. Would it not be possible to increase the passenger traffic and yet the figures show a decrease in productive efficiency, due to an increase in overhead charges?

Mr. Lauck: So far as total productive efficiency of the road is concerned, it would be possible to show that, if you consider the total operating expense. It would have only a small effect on the fireman or engineer; it would have an effect on the total operating efficiency.

Mr. Stone: Well, that part of it is something that the engineers and firemen have no control over?

Mr. Lauck: After you get beyond the actual outlay for the engineers and firemen, the actual working conditions, they have no control over any other factor whatsoever.

Mr. Stone: He is just there to pull the equipment and try to make the time?

Mr. Lauck: Yes. He has no control. Of course, he would

not be responsible for any additional elements of cost in operating or managerial factors.

Mr. Stone: But this one fact remains true, after all the rest is said and done, that the total aggregation of increased productive efficiency has been sufficient to pay for the entire traffic and more than amply reward capital and to enable these companies here to accumulate reserves of between $700,000,000 and $1,000,000,000?

Mr. Lauck: This accumulated credit to profit and loss, excluding accrued depreciation, would amount to about that sum.

Mr. Stone: And this does not take into consideration the enormous special distributions on fictitious securities?

Mr. Lauck: No, in working this out I have not considered the financial management of the railroads at all. Of course, there is a wide difference between the financial and the operating. That is, my personal view is, that, if the financial management had been as efficient as the operating management, that a wage increase such as you request would not have any significance at all; there would be so much money available that had been produced by the operating efficiency, both of the managers and of the men, that it would be of no importance; but, of course, the results that have been made by the operating managers and by the men have been dissipated largely by financial mismanagement.

Mr. Stone: Do you think it is a fair proposition to base the wages of engineers and firemen on net revenue—they have nothing to do with the expenditures, have they?

Mr. Lauck: No. As I stated just now, in answer to some other question you asked me—I have forgotten what it was—after you get beyond the fireman and engineer and his work, he has no control over the other factors. Of course, if you assume that all other factors are properly conducted and managed, then there would be a ground for basing it on net revenue; but he would have no means of knowing whether they were or not, and, of course, would not be responsible for them; that is, for efficiency of operation.

Mr. Stone: I was particularly interested yesterday in regard to that little old locomotive that cost $6,000, and the new modern "battleship" that cost $20,000 to $25,000—just who is

it who buys and who is it who sells these locomotives; that is, I mean, who is it who controls these locomotive companies?

Mr. Lauck: Well, I could not state with any definiteness about that. Of course, there is supposed to be a working relationship between the financial interests that control the railroads and that control companies of that kind. I have never made any study of that sort. It has been brought out in previous arbitrations.

Mr. Stone: It has been brought out in previous arbitrations that the same "big business" that controls the railroads controls these locomotive companies and controls the supply houses, and, in many cases, controls the steel companies?

Mr. Lauck: Yes, sir, an identity of financial interest and interlocking interests there, and intercorporate relations and interlocking directorates. I have never looked into that carefully. I have no doubt it is true.

Mr. Stone: This locomotive mile spoken of here, that may be made by the little ten-wheeler with a tractive power of 15,000 to 20,000 pounds, or may be made by a Mallet with a tractive power of 150,000 pounds?

Mr. Lauck: There is no distinction made between the engines. I think there is another very significant fact, that is, we are handicapped in showing productive efficiency. I believe that I mentioned that originally, that the train load being the average of everything as also it would be if you considered certain divisions or certain efficiency of operation on main line as contrasted with branch lines, or certain divisions where you have installed the heavier power, as compared with divisions that do not have it. Of course, what we get from the Interstate Commerce Commission is the general average aggregate of all locomotive power and all locomotive miles and all train loads, which is less than it would be where the power was actually in operation on the main line or special divisions.

Mr. Sheean: Does that justify a differential in pay on a branch line from the main line?

Mr. Lauck: As I understand it, if they are paid on this basis of tractive power, or weight on drivers, for the little engine, wherever it might be, one reason to have a smaller rate of pay than the big engine, no matter whether it was on the branch

line—presumably it would be on a branch line and would be a less rate of pay.

Mr. Stone: Don't get away with the idea that all the little engines are used on the branch lines. Some of the heaviest power we have is used on some of the branch lines.

Mr. Lauck: I don't know. I am simply speaking of the feeding lines who handle the traffic.

Mr. Stone: Some of the branches are much longer than the main line.

Mr. Lauck: I don't understand how you figure that out.

Mr. Stone: It is a fact just the same. It is very common for these Western roads to have 50, 55 and 60 per cent of their mileage in so-called branch lines.

Mr. Sheean: That you can understand, can't you, how 50 per cent of their mileage may be in branches?

Mr. Lauck: Yes, that would be due to the aggregation of branches.

Mr. Stone: I am wondering whether I am putting you through an examination, or Mr. Sheean is.

Mr. Sheean: I beg your pardon. I will not interrupt you again.

Mr. Stone: I was very quiet while you were examining, and tried to keep still.

Mr. Sheean: I will do likewise. The criticism is justified.

Mr. Stone: Is there anything in the report of the Interstate Commerce Commission to show that freight engineers' and firemen's mileage increase keeps pace with the tonnage increases?

Mr. Lauck: No, it all shows to the contrary, of course.

Mr. Stone: This one fact remains, that tonnage is increasing much more rapidly than freight train miles.

Mr. Lauck: Undoubtedly, yes. That must be on account of the heavier train loading. That is, moving more traffic with fewer train miles, on account of the increase in freight train loading.

Mr. Stone: Is that same true of the locomotive mile?

Mr. Lauck: The same tendency is true of the locomotive mile. You have a heavier train loading, and in many instances fewer train miles, because you may put two locomotives or more on a train, but even on the locomotive, the load itself is increased

of course by increased tractive power and increased capacity of cars.

Mr. Stone: On page 2403 of yesterday's report Mr. Sheean asked you a question there, Mr. Lauck:

"Mr. Sheean: Treating it on the basis of revenue train miles for each $1,000 paid engineers and firemen, they are now delivering fewer train miles than they did in 1909.

"Mr. Lauck: Yes. By virtue of the necessity that the train load has been increased.

"Mr. Sheean: Or by virtue of the necessity that the increased wages have more than offset the increase."

Could it not also be due to the fact, or by virtue of the fact, that the cost of operation had increased? Wouldn't it have the same effect?

Mr. Lauck: On the general cost of the train mile it would. On the added cost of the man, it would not.

Mr. Stone: Again, Mr. Sheean, on page 2404, used the following language:

"And the engineers and firemen in their productivity produce locomotive miles, do they not?"

They also produce ton miles?

Mr. Lauck: Of course the ultimate unit is the ton mile. They produce locomotive miles which have been increased by heavier loading, and the ultimate units produced are ton miles or passenger miles, and that is where the tendency comes in for the freight train miles to increase proportionately less than the ton miles for main line, or passenger main line, rather, where the tendency comes in, other things being equal, rates of pay or rates of freight, for the revenue gained to be more than the added cost.

Mr. Stone: Granted that all train miles and all revenue miles are less, and cost more, is it not a fact that they are all offset by the great increase in ton miles, for revenue per train mile?

Mr. Lauck: Yes, just as I was explaining, that freight rate does not decline, or the passenger rate. Assuming that they are constant, you have increasing revenue per train mile, which

offsets the added cost, and leaves a net return which should be sufficient to remunerate your additional capital investment, if the railroad is operated properly, and which it is, as the result of productive efficiency. That net revenue gain in terms of dollars and cents was the amount that I was trying to put forward in the last exhibit, or next to the last, I believe, No. 39, which we were just discussing.

Mr. Stone: The railroads report the number of employes to the Interstate Commerce Commission?

Mr. Lauck: Yes, sir.

Mr. Stone: And this has been criticised to such an extent that it has been changed?

Mr. Lauck: It will be changed this fiscal year.

Mr. Stone: This coming report?

Mr. Lauck: This fiscal year, yes, sir. They show the number, or will show the number for different periods in the year, so that the variations will be accounted for.

Mr. Stone: Particular stress was laid upon the fact that you went back to June 30, 1908, to start one of your exhibits. What would have been the result if you had made the exhibit read from June 30, 1910, to June 30, 1914? I think Mr. Sheean was referring to Exhibit 23 at the time. Would there have been any difference?

Mr. Lauck: I think that point has been made against all my exhibits in the latter period, that is, 1910 being a prosperous year, would it not have shown a decreasing productivity, efficiency, or decreasing return, or decreasing revenue per train mile, or whatever it might be, on account of that basis.

Mr. Stone: I learned for the first time this morning that 1913 was considered a fat year. What effect would it have had if you had included the report up to June 30, 1914, and the other fat year of 1910?

Mr. Lauck: Of course, then, we would have shown much greater productive efficiency, because of the—or would have shown less if we had taken a year of depression compared with a year of prosperity.

Mr. Stone: If, by any compilation of figures, you could have gotten two fat years together, it would have been more favorable to our side, would it not?

Mr. Lauck: It should have been, owing to the increased

traffic and the increased train loading and the increased efficiency of the employes.

Mr. Stone: But, is it not a fact that the increased train loading since 1910 to 1914 is not only shown by the reports of the railroads to the Interstate Commerce Commission, but it is also shown by reports of the presidents to the stockholders?

Mr. Lauck: Oh, yes, that is not disputed, I don't think.

Mr. Stone: In fact, the presidents, in their annual reports, dwell with pride upon the fact that they have been able to increase their train loading?

Mr. Lauck: Yes, sir. That is the ultimate goal of railroad operating management, efficiency.

Mr. Stone: And they also point with pride to the further fact that they intend to increase it still more?

Mr. Lauck: Yes, sir.

Mr. Stone: Have you made any comparison with this reduction of tons of coal, with the reduction in ton miles, to see whether the percentages held up or not?

Mr. Lauck: I have not made any. I have not looked into that at all. I intended to do that after I got through with the present examination.

Mr. Stone: Suppose the figures are correct, that is, suppose the result obtained from the figures is correct, what would it mean? Wouldn't it have a tendency to show that these basic tables that we have prepared are prepared from the figures submitted by the railroads themselves, and if they bring out that result which we know is wrong, wouldn't it merely indicate that their figures need inspection?

Mr. Lauck: There would be a conflict there between the figures and the testimony of the men who are actually doing the work.

Mr. Stone: On what percentage of the locomotives in western territory—or is there any table to show the number of engines equipped with automatic stokers, automatic fire doors and air grate shakers, and also air coal pushers that are never kept in order?

Mr. Lauck: I have never seen any. I don't know anything about this. Of course, I know of the stoker, I have heard of the stoker, but nothing in connection with that. I know what it is.

Mr. Stone: There is nothing in any of their reports to the Interstate Commerce Commission?

Mr. Lauck: Nothing at all.

Mr. Stone: To that effect?

Mr. Lauck: Nothing so far as I know reported in that connection. I think they report the cars that have automatic couplers.

Mr. Stone: Great stress was laid yesterday on the fact that there was always a higher rate with heavier power. That does not always hold good, does it?

Mr. Lauck: I think not.

Mr. Stone: For example, if you will take our Exhibit No. 4, you will find many of the different types of engines that have a lighter rate than perhaps smaller engines on the same road.

Mr. Lauck: The classifications are, as I remember the exhibit—the classifications are so broad that they include engines of widely different weights and tractive power at the same rate. That is, 10 cents may cover 140,000 to 200,000 just by way of illustration. I don't know much about the technical side of it, but I am sure that the rate does not keep pace with the power.

Mr. Stone: Why are the companies paying more money and getting less miles? Is it due to the heavier tonnage resulting in slower train movement, or what?

Mr. Lauck: Yes, that is a deliberate object, of course, of economical management, that they are paying more money and get fewer miles, and by getting more on the miles, so to speak, their net return is higher, and the work of the men is increased, but the increased cost per mile is really an economy to the railroads.

Mr. Stone: It is done for a deliberate purpose, is it not?

Mr. Lauck: Oh, yes, otherwise it would be less if they did not load up the trains.

The Chairman: Will you kindly suspend, Mr. Stone? We will take a recess until 2:30.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

W. JETT LAUCK was recalled for further examination, and having been previously sworn, testified as follows:

Mr. Stone: Mr. Lauck, there was quite a discussion yesterday relative to the question of invested capital to buy better machinery and to eliminate grades and curves, and all that sort of thing. The one result that you get from all of that is that you get more productive efficiency out of the individual unit, do you not?

Mr. Lauck: Yes, out of each—the object, of course of the increased capital outlay is to get better returns per train mile or locomotive mile by enabling the same locomotive to pull a heavier train over the more level road, or to buy locomotives to get a heavier train over the same road if the grade is not eliminated.

Mr. Stone: In your Exhibit 25, what is the object of this exhibit?

Mr. Lauck: That is to show the increase in the length and weight of the train. That is, it shows the total number of cars, number of empty cars and number of loaded cars in a train, and is supplementary to the showing as to the average freight train load, showing the increase in the number of loaded cars per train.

Mr. Stone: Well, your exhibit also shows an increase both in train load and car load, doesn't it?

Mr. Lauck: Yes, sir, it shows an increase in the total length of the train and an increase in the weight of the train, growing out of more loaded cars per train or heavier loaded. It does not show the load per car, but shows per loaded car per train and per total cars.

Mr. Stone: I thought you had an exhibit that did show increased load per car, in tons. I thought this showed it some place.

Mr. Lauck: This shows the loaded freight cars per train and the empty cars per train.

Mr. Stone: Well, both of these should be taken into consideration—

Mr. Lauck: Of course, the car load did increase; that is, the load per car also increased; that is, in addition to the number of loaded cars per train in 1913 over 1909, you would have an average heavier load per car in 1913 than you would in 1909, due to the cars of greater capacity, the increase in the car capac-

ity, shown on 21, 22 and 23, or, rather, in 23 beyond the period of 1909-1913.

Mr. Stone: Well, both of these increases in train load and in car load have to be taken into consideration with less train miles, do they not? They are all factors?

Mr. Lauck: Yes, they are all factors. That is, if you increase the train load, move it with fewer train miles, you get more ton miles for the same moving cost. The whole object is to put more ton miles on certain units of cost exemplified by the train mile. Of course, if you increase your units of cost per train mile, you decrease the productivity per terms of ton miles.

Mr. Stone: In your Exhibit Number 30, on page 2, where you show operating revenue, this does not show all the revenue, does it, of the road? It simply shows operation from rail?

Mr. Lauck: Rail operation, yes. That is, it does not take into consideration—

Mr. Stone: It might be the smallest part of the revenue of the road, might it not?

Mr. Lauck: It might be, although it usually is not. That is, the other income is the result of the investment of the road by its surplus, which is the accumulation of past operations in the forms of money. This shows the revenue, however, just on the revenue train mile basis from rail operations.

Mr. Stone: Take that Santa Fe exhibit there, on page 2, you show a decrease of 9.67 cents, is it?

Mr. Lauck: Yes.

Mr. Stone: Per revenue train mile, in net revenue?

Mr. Lauck: Yes.

Mr. Stone: Is it a fair way to compare this, when Mr. Sheean says 10 per cent of this went to engineers and firemen? Should not the comparison be made with the total operating expense?

Mr. Lauck: I think it would be fairer to compare the increase in outlay per factor with the total increase in outlay for all factors, or total operating expense, which would affect the percentage.

Mr. Stone: All in the world the railroad has to sell is its rail operation, is transportation of freight and passengers, is it not?

Mr. Lauck: Yes, sir.

Mr. Stone: And all expense and all rail earnings must come from this source of revenue, revenue train miles?

Mr. Lauck: Yes, all rail revenue must come from that. That is the unit of cost, and the unit of output, the locomotive mile, really the train mile.

Mr. Stone: We had quite a good deal of discussion yesterday in regard to productive efficiency of officials and other employes in transportation service. Just how much would be their output in productive efficiency, in case the engineers and firemen and trainmen and conductors didn't do any work?

Mr. Lauck: Of course it would be nothing, because you could not have output without engineers and trainmen operating the trains, the train being the means of producing returns.

Mr. Stone: Then it must be true that the whole foundation structure rests on the earnings of these men, on their productive efficiency?

Mr. Lauck: Yes, on the train mile, or locomotive mile.

Mr. Stone: The question was asked you yesterday if the physical work on the electric locomotive was lighter than the work on the steam locomotive?

Mr. Lauck: Yes, sir.

Mr. Stone: Do you know anything in regard to the work on either?

Mr. Lauck: Not definitely, not in detailed terms, no, sir, except what I have read in general about the steam locomotive engineer, or I have heard testimony to the effect of the relative work and working conditions of each, that is, the greater hazard, as I would understand it, on the electric locomotive, and the electric locomotive engineer being required to have the same qualifications to operate a steam engine as the steam locomotive engineer would have. Also the danger of accidents; but I know nothing that would be worth while in any testimony as to that.

Mr. Stone: Outside of the fixed charges of the railroad, when there is a reduction in traffic, the road is not at any expense for the men, is it; they are simply piece workers, working by the piece, and when there are no miles to go they do not get any pay?

Mr. Lauck: Yes, sir. That point is exemplified in times of depression like we have recently been passing through. When there is a decline in traffic, of course there is a decline in the field

of employment for the men and a decline in the number of miles which they can make, due to the fact that there is less freight to be moved and consequently less train miles. That is obvious, I think.

Mr. Stone: It is also true, in times of depression, trains are held for tonnage, and tonnage increases, and in times of good business they would have to expedite the movement of the trains.

Mr. Lauck: Yes. From the reports it would seem there is greater efficiency in times of depression than in times of great volume of freight. Of course, in times of depression also, I have read in the financial press—I don't know how true it may be—the most efficient men are retained in the service, while the less efficient are temporarily unemployed.

Mr. Stone: We had quite a bit of discussion yesterday over the difference in grade line between the Burlington and the Great Western, between here and St. Paul, and the fact that the Burlington pulled a much heavier trainload. It is true that between competing points they charge the same rate, do they not, regardless of how much the train load may be?

Mr. Lauck: I think so. That is, as far as I know about the requirements of the Interstate Commerce Commission.

Mr. Stone: Taking, for example, a passenger train between Chicago and St. Paul, the rate is the same on any of these lines you choose to go over, is it not?

Mr. Lauck: I think so.

Mr. Stone: Between competing points?

Mr. Lauck: I think so.

Mr. Stone: Although there may be a wide variation in the distance or miles?

Mr. Lauck: Yes, sir. Of course, a road is under a handicap when there may be mileage which would increase the outlay for each revenue passenger mile or train mile in terms of outlay for firemen and engineers, and thereby decrease the train mile earnings on the longer haul.

Mr. Stone: And the figures would show decreased productive efficiency on that account, would they not?

Mr. Lauck: Yes, sir.

Mr. Stone: And the only way to balance that up would be where one route is perhaps 100 miles longer for the engineers

and firemen to donate that 100 miles in order to make the figures come right?

Mr. Lauck: In order to equalize it with the other roads, other factors being equal, yes, sir.

Mr. Stone: Do you think they would ever do it?

Mr. Lauck: The engineers and firemen?

Mr. Stone. Yes.

Mr. Lauck: No.

Mr. Stone: Since 1910, when these Brotherhoods began using the figures of the Interstate Commerce Commission in their arbitrations, have you noticed any change in the figures filed by the railroads?

Mr. Lauck: I have had no occasion to notice it, no, sir. I have made no comparisons between the two.

Mr. Stone: Referring back to that 25, for just a minute, it shows an increase both in loaded cars per train and an increase in tons per car. I wish you would give us a concrete example just how that would work out, and how it would affect the productive efficiency of the engineers and firemen, if you can?

Mr. Lauck: I tried to give an example that would reduce the operation of this to concrete form by taking the rates on certain classes of freight from certain points, and then comparing the train load on this railroad between certain points, and then getting from the engineers and firemen, or from their expert on rates, the increase in costs of engineers and firemen for traveling the same distance, or for working the same distance.

Mr. Stone: Where did you get these rates from, Mr. Lauck?

Mr. Lauck: I got these rates from the Tariff Department of the Interstate Commerce Commission.

Mr. Stone: They are undoubtedly from the tariff sheets filed with the Commission by the railroads?

Mr. Lauck: Yes, they are transcriptions of tariff sheets which are filed by the railroads and which are publicly known and publicly published. For instance, one comparison I based on the Atchison, Topeka & Santa Fe, from a town called Ancona, Illinois, which is 96 miles from Chicago. The rate from this town to Chicago, Illinois, 96 miles away, is 7 cents per hundredweight for corn, 10 cents per hundredweight for cattle, and 11.6 cents per hundredweight for household goods.

Now, taking the car load and loaded cars per train on the Atchison in 1909 and 1913, in 1909 we had 14.7, number of tons in a car on the Atchison, per loaded car, and in 1913, 15.55 tons. In 1909 we had 20½ cars of loaded freight in a train; in 1913, 22½, or a gain of 2.01 loaded cars per train.

I have eliminated—I have not taken into consideration the increased load per car in working out this computation, but simply taking the additional cars which were in the train, you would have 2.01 cars of loaded freight per train from Ancona to Chicago, which would yield in terms of—loaded with corn, $43.97; in cattle would be $62.82, and the increased cost of firemen and engineers would be 40 cents—the outlay, in 1909, for engineers would be $4.80 for making this trip, I am told, and in 1913 it would be $5.20, or 40 cents additional for engineers. For firemen it would be in 1909, $3; 1913, $3.30, or a total added cost for engineers and firemen of 70 cents, as compared with this revenue gain of $43 and $62. Of course, all added costs per train mile would have to be paid out of that, but it gives a comparison between the relative increase in labor cost and the relative gain in the train load, not taking into consideration all the additional tonnage that would be distributed over the train, due to the fact that each car, in addition to these supplementary cars, would be more heavily loaded in 1913.

I have another comparison, based upon the Chicago, Milwaukee & St. Paul, from Milwaukee to Chicago. Milwaukee to Chicago, the distance is 85 miles; the rate on corn is 3 cents per hundred pounds; on cattle, 7, and on household goods, 7.

The load per car on the St. Paul in 1909 was 14.6 tons; 1913, 18.38 tons. The number of cars per train mile in 1909, was 17.82 cars; in 1913, 18.93 cars, or an increase of 1.11 cars.

Putting this in the terms of additional earnings, on corn you would have a revenue gain of $36.30; on cattle, $56.47; on household goods the same, the rate being the same both on cattle and household goods, and an added cost for the engineer and fireman of 70 cents.

The same way on the Rock Island from LaSalle. The Rock Island increased the number of loaded cars per train from 17.61 to 18.82, or 1.21. The rate on corn from LaSalle is 7 cents per 100 pounds; cattle, 10 cents per 100 pounds; household goods, 11 cents. 1.21 cars, not counting the average increase in train

load, arising from all the other cars that had greater capacity, would be, for corn, $26.54; for cattle, $37.92; for household goods, $41.72, and the increased cost of engineers and firemen would be 70 cents.

That shows the rough relation between the increase in the train load reduced to a concrete example. Of course, out of all this added revenue, in addition to the engineers and firemen, you would have to pay all other costs, but gives the small proportion which the increase on engineers and firemen would be of the revenue gained.

Mr. Stone: The showing would have been much better if you had also shown the increased loading per car, would it not?

Mr. Lauck: It would have been, distributing the increase in the average loaded car over the train, in case you have perhaps gotten one more fully loaded car of twenty or thirty tons. I did not add that because I just wanted to show the rough relationship.

Mr. Stone: That would almost double the showing?

Mr. Lauck: Yes, provided all the cars were loaded and you had the tonnage distributed over the whole train, there would be an increase in the train tonnage of 50 per cent to 100 per cent. greater, exemplified by the number of cars to the train.

Mr. Stone: Well, this increased tonnage fell on the men in the transportation service. It did not fall on the officials, or anywhere else. It fell on the men in the engine service and the men in the train service, did it not?

Mr. Lauck: Of course, it impinged upon the train mile and the increased tractive power, and resulted in an increased work and efficiency of the train crew.

Mr. Stone: Referring to your Exhibit 34, what is the intent of this exhibit?

Mr. Lauck: 34?

Mr. Stone: 34.

Mr. Lauck: This exhibit was intended to throw light on the tendency that we have been speaking of, relative to more efficiency in operation during a period of depression. The decline in labor cost, as compared with a period of trade activity or normal conditions. Some of the roads show an increase; some show a decrease; a great many roads show a decreased cost per train mile, due to the heavier loading of the trains and

of more efficiency in operation during this period, which was characterized by industrial depression and a decrease in the traffic.

Mr. Stone: If there was an increase in train miles it might be due to longer hours on the road, or many other agencies that might come up, or what? What would make it?

Mr. Lauck: You mean an increased cost per train mile?

Mr. Stone: Yes.

Mr. Lauck: Of course the longer you are on the road, the more that would increase the cost.

Mr. Stone: Turning to your Exhibit 36. If I understand this exhibit correctly, it shows that the cost of road and equipment is much less, while there is a very marked increase in the freight train load in 1913 over 1900. Is that correct?

Mr. Lauck: I do not get that exactly.

Mr. Stone: Your Exhibit 36. In going through it it appears to me to show that while there are two things, cost of road and equipment, that are much less, there is a very marked increase in the freight train load in 1913 over 1900.

Mr. Lauck: Yes. The object there was to show that although the capital investment in the case of some roads had actually decreased per train mile, that the efficiency of the train mile in loading, and in revenue gains, had been very great.

Mr. Stone: This morning you had quite an animated discussion over the number of telegraph poles along the track. If you had 27 or 32 telegraph poles to the mile along a track, would it have any more effect upon the productive efficiency of the men than it would whether the superintendent had hair or not? Would there be any difference?

Mr. Lauck: Of course there would not be any relation.

Mr. Stone: Then the fact that there are 27 or 32 telegraph poles, does not have anything to do, or is but a slight factor, at least, while the revenue train miles is a very important factor in the earning of the road?

Mr. Lauck: That was the determining factor of cost, the efficiency of operation.

Mr. Stone: In your Exhibit 37, what is shown in this exhibit? Is it not a fact that the abuses under the former practice of charging permanent improvements to operating expenses became so bad—the figures were being juggled so, that the In-

terstate Commerce Commission stepped in and made a new plan for bookkeeping?

Mr. Lauck: The result of permitting this practice was, that you could not tell what operating expenses might include or might not include. In reporting on the operations of a road, the executive of the road could practically make operating cost show anything that he wanted—the operating ratio. To see how it would work out. If you wanted to sell stock you could show high net return, or vice versa. If you wanted to show a bad condition of railroad finances, or lowering in net revenue, you could charge up a lot of things to operating expenses and, of course, the Commission wanted to get everything in a uniform basis, and have only charged to rail operation what was the actual and real cost. For that reason it was changed.

Mr. Stone: So, under the old regime it was simply a question of bookkeeping, whether you made 10 per cent or whether you were 10 per cent in the red at the end of the year?

Mr. Lauck: It could be that, yes, sir.

Mr. Stone: Exhibit No. 38, under this depreciation charge that became effective, I think somewhere along about 1908, at the time the Interstate Commerce Commission issued their order—

Mr. Lauck: 1907 I believe they issued their order and it became effective in the fiscal year 1908.

Mr. Stone: That is where it first showed up?

Mr. Lauck: Yes.

Mr. Stone: And it has increased from that date to this?

Mr. Lauck: Yes.

Mr. Stone: Is it not a fact that roads went back for years and charged for depreciation under this order of the Interstate Commerce Commission, gathering it up and charging it off?

Mr. Lauck: There has been some tendency, since 1910, on the part of the roads to go back and accumulate appropriations for property made prior to 1907, and include them in the property investment account, which you probably have in mind; but the depreciation charge, I don't think has ever been used for that purpose.

Mr. Stone: It is the other I had in mind. Now, coming to that Exhibit 39, the which I believe Mr. Sheean termed the "sliced apple account," the one where the railroad gets all the

apple and the men get the core and the peelings, just what is the principal point in this exhibit; what is it you try to prove by it?

Mr. Lauck: I try to prove that as a result of revenue gains, capital has been remunerated for increased investment as well as all prior investment, and that there is an amount available for the compensation of increased labor efficiency and for appropriations for emergency purposes. That this amount has arisen from productive efficiency of both capital and employes.

Mr. Stone: You heard Mr. Sheean this morning talking in regard to items such as rentals, trackage, yard equipment and all that. Is that all covered by this account?

Mr. Lauck: Yes, sir, all covered according to the classification of the Interstate Commerce Commission. Of course, prior to 1907 there was a different classification, and since 1907 there has been a change in the charging of those items to income, as I stated this morning, that was brought about by that change.

Mr. Stone: Is that all that is hid away in this account?

Mr. Lauck: That is all included here and accounted for, yes, sir.

Mr. Stone: It is a fact that the Interstate Commerce Commission allows the charging of depreciation to be retroactive and allows the railroads to go back and gather up these charges?

Mr. Lauck: No, they do not permit that. I think what you have in mind there is that the revision of the balance sheet, in 1910, if I remember the accounting practices, under Section B-48, they permitted them to go back and take all appropriations for property prior to 1910 and add them to the property investment since 1910, which would have the effect of increasing the property investment and decreasing the ratio of return on the property investment since 1910; but the depreciation, I do not think has been used in that way at all.

Mr. Stone: If the railroads could go back and pick up these appropriations and bring them up, why should we not be allowed to bring up some productive efficiency from those years also?

Mr. Lauck: Well, I think that is the fundamental contention here, especially in connection with the item "Other income," that labor should be permitted to have a participation

in part of the accumulated results of past productive efficiency. Of course a good deal of the results of past productive efficiency have been already brought up and distributed and are not available at the present time. It is unfortunate, but they have gone to capital.

Mr. Stone: Referring to page 6 of Exhibit 39, Mr. Lauck, I was particularly interested in the discussion this morning as to those five-year periods, and that $96,000,000. If I understand correctly, you simply took an average of each five-year period; it is an average year, and that average year shows $96,000,000, is that correct?

Mr. Lauck: Ninety-six million dollars increase.

Mr. Stone: If each one of those five years had averaged as good as that, would it have been five times 96; would it have kept on gaining that way?

Mr. Lauck: No. That is the increase in the last five-year period over the previous five-year period.

Mr. Stone: You took an average year for the whole period?

Mr. Lauck: Yes, sir, a simple division by five. I would like to say, too, I would not want to create the impression that I selected these years because they may have been good years or bad years, in either period. The idea I had in making an average was to take these five years and compare them with the preceding five years.

Mr. Stone: The reason you selected the last two five-year periods was because it brought them up to date?

Mr. Lauck: The reason I selected the last five was because we were basing the exhibits on 1909-1913, and this exhibit was for that period. I did not submit the other exhibits covering this topic for the period 1890 to 1900, owing to the vast amount of material we had already put in.

Mr. Stone: Speaking of these surplus investments, which seems to be quite a bone of contention, how many millions went out in other purposes than these surplus investments?

Mr. Lauck: The other income was $122,000,000 in 1913, and, in 1908, it was $67,000,000, an increase of $55,000,000. That is, the return on the investments of the railroad other than its actual rail investments, although part of that may be investments in the lines of other roads,—my claim is that labor should participate in that just the same as in the actual rail revenues,

for the reason that is part of the accumulations of past operating efficiency, which have been conserved and put into surplus account of the railroad.

Mr. Stone: Why has the Interstate Commerce Commission found it necessary to require a separation of the rail earnings?

Mr. Lauck: Because, as time has gone on—well, fundamentally, because they wanted to separate the transportation company as a railroad operating company, from the corporation, from the financial side of the corporation; the activities of the company other than in railways; but, of course, secondarily, as time has gone on, there has been a combination of transportation companies, which has, to my mind, under proper regulation, been a good thing and resulted in very economical handling of traffic, and this other income, arising partly from intercorporate payments and other investments of one railroad in another, separate operating unit or corporate unit. That is, you might have a railroad that is a holding company which would not have any rail operations at all. That is, you might have a transportation company which was simply a holding company of the securities, and we do have those of other companies engaged in rail operations. Take the Atchison; the Atchison, I think, as a corporation, has exchanged its securities partly for the securities of its subsidiaries, and partly as a property investment of its own, and then you have other companies which have merged most of their subsidiaries together, and operate them as a railroad system, and have absorbed the stocks and bonds, and there are rail operating companies, I mean big systems like the Southern Pacific, which operates a great number of smaller companies, usually under a lease, or through some stock interchange, and has but a very small operation of its own.

Mr. Stone: Through the holding companies they manage to get all the cream of the other companies.

Mr. Lauck: According to the arrangements which they may have with the companies, they get either the net earnings or guarantee the return upon the capital of the other company, with a reservation that they may take the surplus earnings, or whatever arrangement may be made. It varies very widely

Mr. Stone: Speaking of the net revenue since 1910, might not it show a decrease, due to fixed charges of these railroads?

Mr. Lauck: No, that could not.

Mr. Stone: Could not be?

Mr. Lauck: Could not be, no, sir. That is, by fixed charges, you mean by that the charges on the funded debt. That would come in the corporation account and would not come in the rail account.

Mr. Stone: Would not come in the rail account at all?

Mr. Lauck: No.

Mr. Stone: You spoke of 1913 being a fat or a prosperous year. Is it your understanding that statistics show that it was a fat or prosperous year for the railroads?

Mr. Lauck: I think that in gross returns 1913 was a very good year, and with the exception of probably the last month or two of the year it was one of the best years they have ever had. I have not made any comparison of years, but that is my impression of the year, that the falling off of revenue during the latter part of the year, if I remember correctly, I don't say that is true, but my impression is it was a very good year.

Mr. Stone: If 1913 was a so much better year than 1911 and 1912, then why is it that the railroads find themselves in such financial straits at this time and need an increase in freight rates in order to live?

Mr. Lauck: Well, I haven't gone into that in any of my exhibits. I am familiar with what the railroad situation is, that the increasing amount of gross revenue is being absorbed by operating expenses, and they claim that the net is declining.

Mr. Stone: Turning to your Exhibit number 40, what is the intent of this exhibit?

Mr. Lauck: I don't attach any great significance to this exhibit. The intent is to show the small effect upon operating revenues that certain designated wage payments would constitute; the total operating revenues being the gross result of operating efficiency to which the men have contributed, the comparison is made that way, just as I made a comparison of cost of locomotive engineers and firemen per train mile with total operating expenses and total operating revenue. Of course, if you would base a wage payment on the financial ability of the road to pay, you would have to consider net revenue.

Mr. Stone: On page 4, Mr. Lauck, of the exhibit, why did you select these ten particular roads?

Mr. Lauck: I selected those there for the same reason that I selected them throughout all of the series of exhibits which I submitted, which I have explained was due to this fact that, in starting the arbitration, when Mr. Carter and I started the work we did not know how soon it might come off, and we thought we would have data for ten roads if it came very quickly, and would have that much data accumulated anyhow; and then, realizing that if we only had time to work material for ten we should have representative roads, I picked these roads as representative of efficient operating methods and of the best operating conditions in the west and throughout the west. These roads permeate, with their subsidiaries, all parts of the west, and they handle about at least fifty per cent of the traffic—constitute about fifty per cent of the operating revenues, and fifty per cent of the operating expense. They are truly representative of western territory in the best sense of the word.

Mr. Stone: These roads that are working out their depreciation charges, I believe you said there was no fixed percentage yet at this time. The railroads were simply working it out, each one according to his own plan?

Mr. Lauck: The Commission has said that it will prescribe a rate later, I think, but in the meantime let the railroad work out its expense on that line and submit a rate I should think based upon its experience in its determination of its equipment.

Mr. Stone: Well, you don't suppose they would suggest a percentage that would not be in their favor, do you, or, at least, be favorable to the railroads?

Mr. Lauck: I should think they would suggest a percentage which would be based upon their experience with the life of their equipment.

Mr. Stone: These railroads even have more assets than they show, do they not? You have merely taken what they show as assets, haven't you, whether they were for us or against us, you have taken them anyway?

Mr. Lauck: I have taken the actual figures as shown in their certified statements to the Interstate Commerce Commission. Of course, as has been mentioned here, some of these roads have other assets which are undervalued in reporting to the Interstate Commerce Commission, like the land holdings

and the oil holdings of the Southern Pacific, or possibly the land holdings of the Northern Pacific, greatly undervalued.

Mr. Stone: You recall the discussion this morning in regard to what would happen if the railroad companies' other employes would get the same increase that we were expecting. Do you think there is any hope of the employes upon the railroads, who are not organized, getting an increase the same as the engineers and firemen hope to get here?

Mr. Lauck: Operating conditions being what they are, and human nature being what it is, no.

Mr. Stone: Did you ever know it to follow in any of these wage movements that all employes clear down the line got the same increase as was granted by any arbitration?

Mr. Lauck: I do not know anything about that. I would not want to say. I do not know of any case of that kind, no, sir.

Mr. Stone: I was very much interested this morning in a discussion of what 4 per cent would bring on the surplus. You don't expect to pay any labor costs from that surplus, do you? That is not the intent of these roads, is it? Isn't the labor cost paid from the earnings of the roads, the productive efficiency of the roads?

Mr. Lauck: Only as this surplus, as I have shown on Exhibit 39, may be invested, I think labor should participate in the income or other income as represented by that surplus; but, unless the productive efficiency argument may show a return sufficient to pay the increased cost of labor, and remunerate capital fairly, I don't think that any payment should be made to labor from the surplus, except in the way that I have indicated in Exhibit 39. If there is any income flowing to the corporation from that surplus which has been accumulated as a result of past efficiency of operation, then it seems to me that labor should have a measure of participation in this income, provided it has come from that source. If the surplus is due to the sale of securities, or something of that kind, of course, labor would have no claim on that, because that would be capital commitment; but the great point is that the productive efficiency argument stands or falls on a revenue gain sufficient to remunerate the increased cost of labor, and leave a fair return for capital.

Mr. Stone: Back of this surplus isn't it a fact that there is

a steady increase in value of the holdings of these railroads?

Mr. Lauck: There is, due to unearned increment arising from it. I think probably the physical valuation of railroads will show increased cost of road and equipment. Of course, if a railroad carries securities in its surplus, there would be a deterioration in the value of securities such as at the present time, which would reduce the surplus to that extent.

For instance, I notice that the Wabash Railroad has written off a million or two dollars this year on account of some of the subsidiary Gould lines which were wished upon it, and to that extent they have a reduction in their surplus; and a decline in security values such as we have been passing through would affect the surplus, if the surplus had any securities in it of that kind.

Mr. Stone: But one fact remains, that this land and this timber and this oil that is held by this railroad is constantly increasing very rapidly in value, is it not?

Mr. Lauck: Where they have holdings of that kind. I think in the case of the Southern Pacific, Atchison, and Northern Pacific, they are deliberately holding the timber for the unearned increment which is accruing all the time, and which has reached an enormous figure at this time. They, really, according to the grants under which they got this, should have disposed of it to settlers, but it results in the concentration of timber ownership in the west, and a great increase in values.

Mr. Stone: I wish you would state for the benefit of the Board what economic principle underlies the principle of productive efficiency as a basis for wage payment?

Mr. Lauck: I think I have stated that over and over again, and it is probably thoroughly clear that the fundamental idea is that, if you have, by the addition of better capital, instruments, better locomotives, and by additional capital investments, produced greater returns for increased outlays, whether they are increased, or the same, and that this has resulted in placing heavier burdens upon locomotive engineers and firemen, who are particularly affected, and thus show a revenue gain, if that revenue gain is sufficient to meet the added labor cost and capital cost, and leave a net return, that some measure of participation should be given to those directly affected, that is, the engineers and firemen.

Mr. Stone: I wish you would compare productive efficiency with scientific management and explain the relation between them.

Mr. Lauck: A system of scientific management, so-called, would show—the Taylor system of scientific management, or economy and efficiency, whatever it may be designated, that these men get increased productivity by offering a bonus to the particular employe, by setting a certain time to do a certain task with a certain labor cost, and if he gains upon this time set, and upon the labor cost, he shares in the increased productivity.

Here we have increased productivity resulting from better managerial ability and from better capital instruments, and which has resulted in impinging upon the men, and resulted in better efficiency from the men, which they are asking on this principal to participate in. There is no relation of bonus or stop-watch or anything like that to this theory.

Mr. Stone: How do you think it would work out if they offered a bonus for the man who got over the road quickest? But it seems to work out here that they want to keep his wages down if he goes over the road too quick and gets two days in one.

Mr. Lauck: Of course, in his ability to go over the road, he is not a free moral agent there, to use an old expression.

Mr. Stone: What are the principles of profit sharing as well as productive efficiency?

Mr. Lauck: I think there is an important distinction there. According to the principles of profit sharing, the man who owns a business or corporation gives the employes a right to participate. Here we are claiming on this principle the right to participate without any. The principle here requires productivity by some, which is claimed to be a right resulting from increased work and responsibility, while profit sharing would be sort of a paternalistic grant of participation in profit which a laborer may or may not have had anything to do in producing.

Mr. Stone: Like Henry Ford, for example?

Mr. Lauck: Yes, I think that is a distinct example of profit sharing, where increased productive efficiency was probably due more to a managerial genius and organizing ability than anything else.

Mr. Stone: What is the attitude of the economic authorities on the principle of productive efficiency?

Mr. Lauck: I think that they would think that this doctrine was a sound economic doctrine; that is, it is based on the idea of increased productivity and the participation of the worker in the increased output. They would call it a productive productivity theory of wage payment.

Mr. Stone: Is there anything radical or revolutionary or socialistic about this doctrine?

Mr. Lauck: I don't think so. I think that this principle here, if correctly applied, is an antidote, as I believe I stated once before, for everything that is revolutionary and radical, not so much in the transportation industry; but I think the recognition of the principle in other industries would offset the radical and revolutionary movements. Of course, you have to bear in mind all the time that this principle assumes efficiency on the part of the employe; that is, the employer has the right to demand efficiency, and lower labor costs from the employe, as well as the laborer claiming the right to participate in increased output. It is not a one-sided idea, but it is something in which the laborer or worker has distinct responsibilities on him as to the employer, it seems to me.

Mr. Stone: Coming back to these exhibits of yours just a moment, if you were to prepare statistical information for another Arbitration in the West, would you begin with 1913, last year, for your information, or would you start with 1914 or 1915, leaving a period of time not accounted for in between there?

Mr. Lauck: I would start with 1913 just as we did in this case, as it was the last year for which statistics were brought up in the previous case, and so made the starting point on this case. That is one of the reasons that I have used it.

Mr. Stone: In putting on your exhibit for the period of 1909-1913, you of course understood from the figures that they did not make as favorable a showing, comparatively, as the previous period, did you not?

Mr. Lauck: Thoroughly, yes.

Mr. Stone: But your argument rests on all periods, does it not, not on any specific period?

Mr. Lauck: Yes, the fundamental claim is that productive efficiency has not yet been properly remunerated, going back of 1909 and covering some period in the past.

Mr. Stone: In your exhibit 39, in connection with the questions raised this morning, you did make provision for funded debt in making your reduction from gross corporate income, did you not?

Mr. Lauck: Yes, sir, I explained that at the time, I thought, that I took the gross corporate income and deducted from that all other deductions except interest on funded debt and other capital requirements. Say the gross corporate income was $400,000,000, and their deductions were $50,000,000, therefore, you had $350,000,000 left to pay interest on the funded debt, to pay the stockholders, and to put into resources, or to what else the stockholders might determine. Then, in 1913, if $450,000,000 were left, you would have $50,000,000 then left to remunerate capital and compensate increased productive efficiency. That was clearly brought out this morning in the discussion of the exhibit.

Mr. Stone: What is the real measure of productive efficiency?

Mr. Lauck: I think the real measure, from the standpoint of the present case, is the ability to get a certain ton mileage or a certain amount of traffic over the road with a certain outlay for engineers and firemen, which will produce gain to the railroads after compensating the locomotive engineers and firemen for increased rate of payment.

That is, a more economic handling of traffic must result in revenue gains sufficient for this purpose.

Mr. Stone: What is the relation between financial managements and productive efficiency?

Mr. Lauck: Well, there is a very distinct relation between financial management and productive efficiency, but I have not touched upon that here, except, casually, we have had some reference to it. As I see it, the operating side of the railroad is distinct from the financial administration, and you may have a very great productive efficiency of the operating unit which, if the financial administration is not prosperous or not efficient, may result in dissipating the gains arising from productive efficiency, through unjustifiable payments to capital. Of course, that can all be shown, what has been dissipated from the gains in productive efficiency in the past. But we have not touched upon that in the present proceedings. I am simply

taking the figures as reported to the Interstate Commerce Commission.

Mr. Stone: That is all, Mr. Lauck.

Mr. Nagel: Mr. Lauck, you have given us the distinction between profit sharing and participation based upon productive efficiency.

Mr. Lauck: Yes.

Mr. Nagel: You have said that the first is a concession on the part of the proprietor, and the second is a right demanded by the employe?

Mr. Lauck: Yes, sir. That is my idea about it.

Mr. Nagel: Does not the distinction go further than that? Profit sharing is impossible unless there are profits to distribute.

Mr. Lauck: Yes.

Mr. Nagel: Would you make the right to participate in the productive efficiency, dependent upon the financial result, or upon the accomplishment of the work to which the employes' effort is directed?

Mr. Lauck: I would place it upon the work primarily, because I have not considered the financial administration of the road at all.

Mr. Nagel: In other words, you make the same distinction to which you have just referred, between the financial results and the product to which the employe has directed his labor?

Mr. Lauck: Yes, sir. If the financial ability to pay were not injected into the question, then it would be incumbent upon us to show, I think, that previous productive efficiency has been dissipated, otherwise we would be financially able to pay. Some point of that kind.

Mr. Nagel: Well, then, you admit that the compensation to the men ought to depend on the financial condition of the road?

Mr. Lauck: No, sir, I am not contending that now.

Mr. Nagel: Do you admit it? In other words, ought the compensation of the men to fluctuate with the results achieved by the road?

Mr. Lauck: As a corporation, a financial corporation, you mean?

Mr. Nagel: Yes.

Mr. Lauck: I would say on broad theoretical principles yes, if the financial management and other factors were efficient,

but as the men have no control of that, and as it is a factor over which they have no regulation nor can participate in, I should say the fundamental consideration should be the increased work or responsibility.

Mr. Nagel: If you do not say that, what becomes of the road in the hands of a receiver?

Mr. Lauck: They should be required—my attitude there would be that the financial condition in which they find themselves is something which the men have had nothing to do with and cannot control.

Mr. Nagel: In other words, you come back to the result which they accomplish for the road, no matter what the ultimate financial result may be?

Mr. Lauck: Yes. You can very well conceive of a road being very efficient in this productive sense, and still being so unfortunate as to have the financial management that might be misguided or unscrupulous, and dissipate the gain, leaving the road in a bad financial condition.

Mr. Nagel: Or by causes entirely innocent?

Mr. Lauck: Yes, entirely innocent of any improper motives.

Mr. Nagel: Isn't there something in the contention that a railroad is clothed with a public character, a public responsibility, in a sense, and for that reason the employes must be properly compensated at all times in order that the public service may be rendered?

Mr. Lauck: I think that is a very strong reason, one of the very strong reasons. That is, that the public wants efficient operations and safety in operations, and the body of men who render efficient service, I think that they would expect them to be properly remunerated if they performed additional services.

Mr. Nagel: Do you limit your rule to locomotive engineers and firemen, or do you extend it to other employes of the railroad?

Mr. Lauck: I extend it to other employes of the company, to use the term used here, giving seniority to the men who actually contribute most to the result; that is, the men who are affected most by the result of increased output. If their connection is remote, I think their participation should be remote, granting that they have a proper wage to start with.

Mr. Nagel: But if the station agents and telegraphers were to cease work, the operation of the railroad would stop?

Mr. Lauck: Yes, sir.

Mr. Nagel: In other words, they all hang together?

Mr. Lauck: They are all inseparably bound together as one operating unit.

Mr. Nagel: And a particular economic rule applied to one ought to, at least, in some measure, be applied to the other?

Mr. Lauck: I think so, yes, sir.

Mr. Byram: I just want to ask, Mr. Lauck, if an engineer and fireman running one of these large engines do not, in fact, participate in the return from their productive efficiency through that engine by the fact that they get a higher rate of pay for running that engine a mile, as compared with a smaller engine, one of less capacity?

Mr. Lauck: Yes, so far as they get higher rates for the increased work and responsibility, they do.

Mr. Byram: So they do in fact participate at least to some extent?

Mr. Lauck: To some extent, which they claim is not enough.

Mr. Byram: They claim it is not enough?

Mr. Lauck: Yes.

Mr. Byram: So the principle of participation on the part of these men is already in effect, to a degree?

Mr. Lauck: I think so, yes, sir. So far as I know about the rates, I think that is correct.

RE-CROSS EXAMINATION.

Mr. Sheean: In the same connection this morning, I understood you to rather give assent to the statement of Mr. Stone, that if in fact the railroad companies were not paying more per ton of coal handled than they were in 1913, that there is something wrong with the statistics.

Mr. Lauck: No, I did not give assent to that.

Mr. Sheean: You did not?

Mr. Lauck: No, sir. My attitude is that I know nothing about those statistics, that is, critically.

Mr. Sheean: As to whether there was anything at all inconsistent in the conclusion we drew yesterday from your basic

tables, that, on coal burning roads, it does develop, on the basic tables you have used, that for each $1,000 now paid to engineers and firemen, there was a less number of tons of coal handled in 1909,—that may be entirely consistent with the fact that on the larger engine a higher rate of pay is being paid now than was paid in 1909.

Mr. Lauck: It may be affected by that fact, as far as I know.

Mr. Sheean: If, in fact, the figures as there given show that for every dollar now paid out, less coal is actually handled than in 1909, that simply shows that the recognition of increased productivity, to which Mr. Byram has referred, has been greater than the increased amount of coal, at least, that has been put upon the fireman?

Mr. Lauck: That would seem to indicate the same theory that I am claiming in the $1,000 per ton mile output, so far as I know. Of course the actual operating conditions I know nothing about.

Mr. Sheean: Merely that the figures, as quoted, show a greater number of tons of coal in the last year, and a greater number of dollars paid in the last year, but the proportionate increase in dollars is greater than the proportionate increase in coal?

Mr. Lauck: Yes.

Mr. Sheean: And whether you reduce that to the ton mile basis, or the locomotive mile basis, while it is true there is more coal consumed per ton mile, it is also true that the compensation per ton mile is greater, relatively, than the increase in coal per ton mile.

Mr. Lauck: The increase in compensation?

Mr. Sheean: The increase in compensation.

Mr. Lauck: Of course, the men would claim that compensation is not adequate, I suppose; but I know nothing about the operating conditions there, or what would affect it.

Mr. Sheean: So it is true, is it not, on the examples you gave of hauling a greater amount of live stock between these points; taking, for instance, the points you mentioned upon the Santa Fe; the table you have given me here would indicate that on the Atchison, Topeka & Santa Fe, between 1909 and 1913, there was an increased effectiveness in train load of 9.85

per cent, while the figures you showed as to firemen indicated an increase of from $3.00 to $3.30, or 10 per cent.

Mr. Lauck: Yes.

Mr. Sheean: And an increased load on the Santa Fe of 9.85 per cent, and an increased compensation to the engineers of from $4.80 to $5.20?

Mr. Lauck: Of course, that, expressing it all in terms of per cent, brings up the same old argument that we have had, as to whether or not you can compare working conditions and arduousness of work, and increased payments in terms of per cent.

Mr. Sheean: No, I am just attempting to follow the thought that Mr. Byram suggested, that when and as there has been a greater efficiency in operation, so, with the heavier power, there has been a recognition of increased wage, to some extent—whether enough or not, we are not now debating.

Mr. Lauck: I think there has been a recognition. The rates are based on the weight and tractive power of the locomotives.

Mr. Sheean: So far as coal shoveling is concerned, the rate of increase has been greater in dollars than the rate of increase in pounds of coal. That is true is it not?

Mr. Lauck: That is true.

Mr. Sheean: And so as to the Atchison, Topeka & Santa Fe, the rate of increased tonnage on the points that you mentioned, is not quite so great as the rate of increase of compensation to engineers and firemen. That is also true, is it not?

Mr. Lauck: That is true, as shown by this. The general method of comparing percentages of different things that way, as I have stated, does not appeal to me as the way to settle the problem.

Mr. Sheean: I did not carry it to percentages in the case of coal, Mr. Lauck, but adopted your own method.

Mr. Lauck: Yes, you adopted my own contention.

Mr. Sheean: You reduce it to per $1,000 of compensation, and reducing it to that basis, per $1,000 paid out by the railroads, the number of tons of coal shoveled now, or handled, or consumed now, is less than in 1909?

Mr. Lauck: Yes.

Mr. Sheean: Now, as to this depreciation charge that Mr.

Stone has referred to in Exhibit 40, Mr. Lauck, I think you said that you fully concurred in the view expressed by the Commission, that the depreciation written off was too small?

Mr. Lauck: I did say that. I took no exception at all to the depreciation charge, or the possibility it is not adequate, or to the method. I think it is a fine method.

Mr. Sheean: So that as to the accumulation of a surplus, Mr. Lauck, it is recognized as necessary that provision should be made for a surplus?

Mr. Lauck: Oh, yes.

Mr. Sheean: Not only to meet emergencies, but also for the maintenance of credit?

Mr. Lauck: Yes, that is like a bank surplus. You must do that.

Mr. Sheean: And yet with all of the surpluses that have been accumulated here on all of the railroads, even on their book value, through this long period of time, an increase of 5 per cent to all labor would require all of the income from that surplus at 4 per cent?

Mr. Lauck: Yes, sir, but if you used the surplus for that period, I think the theory must stand on whether the revenue gains would compensate them or not. I do not think you ought to have recourse to that.

Mr. Sheean: That brings us back for just a moment to No. 39. If you will turn back to No. 39, on page 6 of Exhibit 39, the revenue gains from operation would be shown upon the first four lines, or first five lines.

Mr. Lauck: First five lines.

Mr. Sheean: First five lines. Now, I think you said this morning that, in the viewpoint of the Commission, that represented all of the income from that property which arose from rail operation in the way that they keep accounts, and that on these forty-three roads would show $67,000,000 from rail operations, with an additional investment of over $1,000,000 during that period. Now, if I understand the table correctly, Mr. Lauck, the added amounts that you have there from other operations, some $55,000,000, include among others the Union Pacific shown on page 58, the detail—58, and of that $55,000,000 arising from other than outside operations, you take an in-

crease of $19,000,000 accruing on the Union Pacific alone from other than outside operations?

Mr. Lauck: Yes.

Mr. Sheean: And you distribute that thus accumulated there, among the rest of the forty-three roads to show this possibility of operations if they were all combined?

Mr. Lauck: Of course a lot of them show a deficit. A lot of the roads may show a loss there.

Mr. Sheean: Yes. Well, I understood you to say a moment ago that you thought it was fundamental that the increased productivity should be shown from rail operations?

Mr. Lauck: Yes, I do.

Mr. Sheean: So that if you take the last period here, the last five year period, and show only the operations during that period of revenue, or the net income from operations, your tables would fail on there being available very much money in excess of what was necessary to pay capital, would it not, Mr. Lauck?

Mr. Lauck: Yes, I consider the other income as the result of past rail operations that have been conserved.

Mr. Sheean: Exactly. I am saying that, even on your theory that it should be, increased productivity from rail operations the last five years, does not show that during the operations of the five years there has been productive efficiency that would very much more than pay interest on capital?

Mr. Lauck: No, you never could take a specific period, for the reason you mentioned this morning, that that short duration of time could not be segregated, because capital invested takes a long time to become productive, a large part of it, to reproduce itself.

Mr. Sheean: Then, the Commission, in its suggestion that segregating five years' time and attempting to segregate the operations of those five years from the other value in the plant, is advancing a somewhat nebulous theory.

Mr. Lauck: If you confine it strictly to rail operation, but the offsetting tendency that would come up would be the fact that previous capital is shown in other income compensating for the lack of return on the capital put in the period.

Mr. Sheean: Now, Mr. Lauck, I think you said this morning—I am not quite clear about that, and want to get it perfectly

clear, and perhaps I had better put an illustration to see whether or not it fits the situation. Assuming that there is a $900,000 corporation here, or that there is $900,000 in property invested, and it is unproductive, and requires an investment of another $100,000, whereupon the entire plant, as a plant, becomes productive; is there, underlying this, the assumption here that that first $900,000 not only had taken care of itself to date, but that it was possible to take care of its funded obligations separate and distinct from the last $100,000 that you put in?

Mr. Lauck: Yes.

Mr. Sheean: There is, underlying all of the tables, that assumption?

Mr. Lauck: Yes.

Mr. Sheean: Now, it is a fact in railroad operation, as apparently the Commission points out, that in order to get any return on the property, this additional money may be needed to bring about a return upon the whole property?

Mr. Lauck: That underlying assumption is there, because the revenue is available to pay it. That is, the assumption has been demonstrated by the fact that the amount of money has been produced to meet all these charges up to 1908, as shown by the amount available for capital. That is, the funds are really there and are being disbursed.

Mr. Sheean: Well, insofar as you are able to separate the last—and you can separate by following the accounts of the Interstate Commerce Commission—the actual rail operations during the last five years, do not produce a net income that would make or leave anything substantial beyond even the low return of 4 per cent to capital, arising merely from rail operations.

Mr. Lauck: If you consider the rail operations alone—which of course I could not agree with you that you should do.

Mr. Sheean: Yes, I just wanted to make that clear, Mr. Lauck.

Mr. Lauck: Yes.

Mr. Sheean: But if you do take the last five year period, and consider the roads as merely operating railroads, having no source of income other than from rail operations, the increased returns during the last five years, will not any more

than pay 4 per cent on the additional investment during that period?

Mr. Lauck: I have never looked that up in detail. I think that would be in general correct, but of course I could not agree that that could be done, or should be done.

Mr. Sheean: I note, Mr. Lauck, that in your Exhibit 38—the first page of it, the explanatory note, you make this statement:

"As a consequence, the operating ratio during the past seven years is not comparable with the preceding years."

The operating ratio to which you refer is the ratio between operating revenues and operating expenses, the first two items in this table?

Mr. Lauck: Yes.

Mr. Sheean: So that whatever objection there was to the use of the operating ratio previous to 1907 in this table, obtains with like force and effect as to any of the other tables?

Mr. Lauck: I simply mean that the accounts are not strictly comparable. They have discontinued charging depreciation since 1907, to operating expenses—

Mr. Sheean: Now, Mr. Lauck, I understood you to give assent to another suggestion of Mr. Stone's this morning, that in the passenger traffic the returns showed that there were fewer passengers per revenue mile hauled in late years.

Mr. Lauck: Yes, I was going to mention that. I was just waiting until you got through. My attention has been called to a 1913 report of the Interstate Commerce Commission. If the Board will remember, I have been making statements to the effect that a passenger train has been made more heavy by the steel coaches and by the heavier tractive power, but that they have not been able to get the passengers in the coaches, and therefore the train load has decreased. The statements I based this on are casual reference to three or four roads in the West which did exhibit this tendency. On referring, however, to the Interstate Commerce Commission preliminary abstract of statistics for the year 1913, I find that there have been some increases in the passenger train load.

In 1902 for all the roads in the United States there were 45 passengers per train.

In 1909 there were 54 passengers; and in 1912, 53 passengers.

1912 and 1913 then, as compared with past years away back, would show a gain; compared with 1909 would show a slight loss of one passenger per train.

I mention this because I do not want to give any incorrect impression that in the country as a whole the tendency is for there to be a slight increase in the passenger train load, and I don't know how it would affect the specific western roads, the western territory as a whole.

Mr. Sheean: Now, Mr. Lauck, I would like to get straightened out a little clearer on this matter of the number of employes to which reference has been made in reporting to the Interstate Commerce Commission.

I wish you would explain whether or not the difficulty that has been encountered in the matter of the average daily wage in the form that the Interstate Commerce Commission requires, is not traceable to the fact that they are required to report under "Total number of days' work," rather than because of any great difficulty about the number of employes on a particular time.

Mr. Lauck: Well, of course, that may be the chief difficulty. What is a day? Nobody knows what a day is. What is the number working on any particular day? No one knows.

Mr. Sheean: Just so the Board may know this matter that Mr. Stone has adverted to, I wish you would read into the record the instructions that are made by the Interstate Commerce Commission as to the ascertaining of the daily wage.

Mr. Lauck: On page 90 of the Annual Report form, where they instruct the railroads how to report the number of employes, the following instructions appear:

"In column 'Number on June 30,' state the number of employes in each class as determined from the pay rolls *at the end of the year for which this report is made.* It is not intended, however, that laborers engaged in the construction of *new line* should be included among railway employes.

"Under 'Total number of days worked,' give the aggregate number of days worked by all the employes of each class named during the year covered by this report.

"Under 'Total Yearly Compensation,' give the aggregate

compensation paid to all the employes in each class named during the year covered by the report.

"To obtain 'Average Daily Compensation,' divide the 'Total Yearly Compensation' of any class by the 'Total number of days worked' by that class. It should be especially noted that the number of employes at the end of the year is not to be considered in determining the basis for computing 'Average Daily Compensation.'"

Mr. Sheean: Now, Mr. Lauck, I think you said that where there were no instructions as to what should be considered a day, there might be considerable difference of opinion as to how many days you would report for a person who made a fast trip within a short number of hours, but, under a schedule was paid three or four days for it.

Mr. Lauck: No one has been able to arrive at any designation as to what a day is that any one else will agree to.

Mr. Sheean: But, down to the last summary issued by the Interstate Commerce Commission itself (if you will turn to page 27, Mr. Lauck) have you that statistical report there? The conclusion of the Commission itself as to the statistics is stated in the last paragraph as follows:

"These statements pertaining to average daily compensation are not altogether satisfactory. The compensation of employes on account of overtime work, for example, is not clearly reflected in these averages. The fact that overtime is customarily paid for at a higher rate than the hours covered by the ordinary day, does affect the average daily compensation here reported, but the extent to which it affects the averages cannot be determined from the returns received. It is not possible to change the basis of compiling and reporting compensation for railway employes so as to arrive at the average amount earned each day by the average employe of each class without either changing the rules according to which certain classes of railway employes are paid, or formulating a set of arbitrary rules for converting compensation into terms of a daily wage. Much study has been given to this question, but thus far, without arriving at any satisfactory solution. Meanwhile, the tables are continued, and, if properly understood, will serve a useful purpose as a basis of comparison from year to year."

Now, Mr. Lauck, upon any railroad company which con-

tinues the same system of ascertaining days merely for the purpose of reflecting a general tendency from year to year, there is no objection to this method of making report, is there?

Mr. Lauck: If they would observe that, no, but the general opinion seems to be that methods vary from time to time, and that no company has been uniform in this practice over a long period of years.

Mr. Sheean: Well, it might make, Mr. Lauck, the comparison of one company with another company incomparable, but if the same method of ascertaining days was continued from year to year on that company, while not truly reflecting the actual or average daily wage, nevertheless one year would be fairly comparable, merely for the purpose of showing a tendency, would it not?

Mr. Lauck: If one company would adopt the same method, they would get a comparable result over a period of years, but I do not believe you would ever get anybody to believe they had adopted the same method, judging from what I know the contention has been held.

Mr. Sheean: Has there been a suggestion made at any time of change in method of the particular road from year to year, or simply that different roads have differently ascertained what was meant by a day? On road reports every hundred miles being a day, because it is paid for a day; others reporting it on calendar day perhaps. Have you heard any criticism or suggestion of a single road changing its own way of reporting from year to year, and if so, as to what road?

Mr. Lauck: I don't remember any specific roads. I have heard some very animated discussion of this question. As a matter of fact I have heard contentions made to the point that that would be a mild accusation to make against the roads that they had changed their methods from time to time and changed them to suit circumstances. I don't know anything about the proof of that.

Mr. Sheean: The total payroll of all men is shown from year to year?

Mr. Lauck: The total annual outlay.

Mr. Sheean: The total annual outlay?

Mr. Lauck: Yes.

Mr. Sheean: And, expressed in terms of firemen and ex-

pressed in terms of engineers, collectively, as you have used that here, you have used those same figures in making the comparison?

Mr. Lauck: Yes, sir.

Mr. Sheean: That is all, Mr. Lauck.

RE-DIRECT EXAMINATION.

Mr. Stone: Mr. Lauck, I am particular interested in this day's work. If they reported a greater number of employes one year than another, what would happen on that comparison sheet?

Mr. Lauck: Assuming that they followed the instructions of the Interstate Commerce Commission?

Mr. Stone: What are the instructions of the Interstate Commerce Commission for a day's work?

Mr. Lauck: The instructions, as you probably recall, based on the number of days worked and not on the number of employes.

Mr. Stone: Well, how many days did the men work—how did they arrive at that?

Mr. Lauck: That is something I do not know.

Mr. Stone: Is it a fact that everybody regards the whole thing as a joke?

Mr. Lauck: That is my impression, yes.

Mr. Stone: Even worse, when you call it by its right name?

Mr. Lauck: Sort of a tragic joke in some instances in which I have seen it used.

Mr. Stone. The fact remains, while we would not say the railroads juggled the figures, we do say the figures won't bear the light of day, on these records, in regard to this basis of days worked?

Mr. Lauck: That is the general contention against them. As exemplified, the Interstate Commerce Commission has changed that.

Mr. Stone: Even though it has been changed, it does not say it will cause it to be accurate?

Mr. Lauck: No. This quotation is not since the new plan was put into effect.

Mr. Stone: Taking the new plan, do you think it is going to be all right?

Mr. Lauck: It is going to be better than the old.

Mr. Stone: Anything is better than the old, but will it be all right?

Mr. Lauck: I don't think it is entirely satisfactory, or any method ever devolved would be entirely satisfactory, because of the difficulty of getting any correct designation of that kind.

Mr. Stone: Is there anything better than the actual rate of wages that a man receives, for ten hours' work, to base the daily wage on?

Mr. Lauck: I think not, no sir,. That is assuming that he works, and that is his daily compensation.

Mr. Stone: Well, we will take it for granted if they get him out on the road, under the present system of operations, that he will work.

Mr. Lauck: Yes, you could assume that.

Mr. Stone: But there has not been anything definite decided whether a day is ten hours or twelve hours—taking, for example, this Exhibit 31, where 49,286 men worked 16 hours or over, was that a day that each one of them put in, or what was it?

Mr. Lauck: That would probably vary according to the accounting practices of the different roads which reported the days; whatever the road might be using as a day at that time.

Mr. Stone: Taking, for example, those men who were on duty over 40 hours, it is safe to assume that they give a reasonable day's work, is it not?

Mr. Lauck: If you could conceive of 40 hours in one day.

Mr. Stone: Well, it was a day as far as he was concerned, there was not any sleep in it, or any night or anything else; it was all work. Coming back to that load of stock on the Santa Fe, I am particularly interested in that. Mr. Sheean figures out that the fireman got ten per cent increase when he got 30 cents. If I have the figures correct, the railroad would get about $97.69 increase on that car of stock on that 8 per cent.

Mr. Lauck: That was on the whole train.

Mr. Stone: I should have said the train. The fireman got 30 cents, or ten per cent increase?

Mr. Lauck: Yes.

Mr. Stone: And the railroad got $97.69?

Mr. Lauck: That would be the increased revenue train earnings.

Mr. Stone: Nine per cent for the railroad and ten per cent for the fireman?

Mr. Lauck: Yes. That I think represents the inability to compare things so dissimilar, on a relative per cent basis.

Mr. Stone: Take that train load of household goods on the Milwaukee; the fireman got 30 cents increase, about ten per cent, and for the nine per cent of the railroad, they got $102.80 increase?

Mr. Lauck: On a train load.

Mr. Stone: That shows nine per cent is more than ten per cent, doesn't it, if you want to make a play on figures? The same is true of the Rock Island, on the household goods from La Salle; the fireman got 30 cents and the railroad got $54.65 increase. In other words, nine per cent is about 400 times as much as ten per cent, and they talk about percentages. Coming back to that question of pulling passenger equipment, which is the most work for engineers and firemen, pulling an empty steel Pullman or a loaded wooden day coach?

Mr. Lauck: The steel Pullman, of course.

Mr. Stone: Because it weighs the most?

Mr. Lauck: Yes.

Mr. Stone: Yet there may not be a revenue passenger in it?

Mr. Lauck: Yes. We have discussed that quite extensively.

Mr. Stone: It might be all traffic men going out looking for business?

Mr. Lauck: Yes.

Mr. Stone: In regard to that question of the higher rate received on the larger locomotive, isn't it possible that that, and more than that, can be absorbed by the reduction in locomotive miles and the slower train movement and the reduction in train miles?

Mr. Lauck: Do you mean out of the aggregate outlay of the railroad?

Mr. Stone: No, I mean out of the aggregate money received by the engineer and fireman—so much more money that they get for the bigger engine.

Mr. Lauck: It would not be absorbed out of that, but it ought to result in a revenue gain that would compensate capital.

Mr. Stone: Does he get as many miles as he used to?

Mr. Lauck: No, he would not be able to make as many miles as formerly, theoretically, because it would take him a longer time to make the same amount of mileage now than it did some time in the past, and his ability to make mileage would decline because of the more arduous nature of the work.

Mr. Stone: So that, at the end of the year, regardless of the fact that he may have gotten 40 or 50 cents a hundred miles increase, because he had to lay off more and did not have as many days, at the end of the year as when he had the lighter power?

Mr. Lauck: That would be a theoretical tendency. The actual facts I don't know.

Mr. Byram: This last testimony you have been giving here, do you subscribe to all of these things having happened that Mr. Stone has stated?

Mr. Lauck: I made no reply to Mr. Stone on some of the questions.

Mr. Stone: If there is any question about it it will be an easy matter to prove it by other witnesses.

Mr. Lauck: Of course, I don't know anything about actual operating conditions.

Mr. Stone: That is all.

(Witness excused.)

Mr. Carter: I will call Mr. Hawley.

A. H. HAWLEY was called as a witness and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Carter: State your name.

Mr. Hawley: A. H. Hawley.

Mr. Carter: Place of residence?

Mr. Hawley: Peoria, Illinois.

Mr. Carter: What is your occupation?

Mr. Hawley: General Secretary and Treasurer of the Brotherhood of Locomotive Firemen and Enginemen.

Mr. Carter: How long have you been General Secretary

and Treasurer of the Brotherhood of Locomotive Firemen and Enginemen?

Mr. Hawley: A little over six years.

Mr. Carter: Have you made a special investigation as to the proportion of causes of deaths and disabilities of members of the Brotherhood of Locomotive Firemen and Enginemen?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you identify that as the statement which you have prepared (handing paper to witness)?

Mr. Hawley: (After examining.) Yes, sir.

Mr. Carter: Mr. Chairman and gentlemen, we would like to introduce this as Exhibit 42 of the employes.

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 42. January 12, 1915.")

Mr. Carter: Mr. Hawley, in your own way, please explain the result of this investigation. Read the title of it, first.

Mr. Hawley: The title is: "Proportion of Deaths and Disabilities of Members of the Brotherhood of Locomotive Firemen and Enginemen Caused by Railroad Accidents."

This statement has been prepared for the purpose of showing the high percentage of deaths and disabilities directly resulting from railroad accidents. Approximately 47 per cent of the deaths of members are from railroad accidents, and I know of no other occupation that the records show the hazard of employment so great.

Mr. Carter: Pardon me, are you sure that 47 out of every 100 members of the Brotherhood of Locomotive Firemen and Enginemen die as a result of railroad accidents?

Mr. Hawley: 47 per cent of the deaths that are reported to the office die from accidents.

Mr. Carter: You understand 47 per cent would be 47 out of 100, do you not?

Mr. Hawley: Yes, sir.

Mr. Carter: I ask you the question, do you know positively that 47 out of every 100 deaths of members of the Brotherhood of Locomotive Firemen and Enginemen are the result of railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Nagel: Do you mean during service, or do you embrace men who die after they are relieved from service?

Mr. Hawley: The exhibit here shows that 47 per cent of the members of our organization died as a result of railroad accidents.

Mr. Nagel: Do they continue to be members after they leave the service?

Mr. Hawley: Some of them do, but the exhibit here shows those who were engaged in other vocations. That is taken care of on page 3.

Mr. Park: Does it show, Mr. Hawley, the proportionate percentage that die of tuberculosis or pneumonia or other diseases?

Mr. Hawley: What is it?

Mr. Park: Do your figures show the number of firemen or percentage that die from tuberculosis or pneumonia?

Mr. Hawley: No, sir, they do not.

Mr. Park: So that if 50 per cent of some other comparable vocation die of pneumonia, and only a small percentage of firemen, it would indicate that while firemen were subject to greater risk of accident, they were not subject to greater risk from pneumonia or tuberculosis or other diseases? You have no figures showing that?

Mr. Hawley: No, sir. Page 3 of the exhibit will show deaths from railroad accidents, deaths from disease and the deaths from other causes, and the percentage of each to the total number of deaths in the years beginning 1904 and ending 1913. They make an average percentage for the ten years of 47 per cent who die from railroad accidents.

Mr. Carter: Mr. Hawley let us see, so there can be no mistake. During this period of ten years you assert that 47 out of every 100 members of this brotherhood who died, died from railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Park: Then don't you have figures of the other deaths, the other percentages?

Mr. Hawley: I haven't them here, no, sir. We have them at the office.

Mr. Park: You keep them in your office?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you know of any other organization or class of men on earth where the proportion of deaths from casualties is as great or as high?

Mr. Hawley: No, sir.

Mr. Carter: What have you found with regard to disabilities, on page 1, third paragraph?

Mr. Hawley: Of the 1,224 disabilities reported, including those from Bright's disease of the kidneys, consumption of the lungs, locomotor ataxia, paralysis, blindness, and amputation of hand or foot, 691 resulted from blindness and amputation.

Mr. Carter: What percentage would that 691 be of 1,224?

Mr. Hawley: About 57 per cent.

Mr. Carter: That I understand is 57 per cent of all disabilities have resulted from blindness and amputation?

Mr. Hawley: Yes, sir.

Mr. Carter: Do I understand these disabilities to be total disabilities?

Mr. Hawley: Yes, sir.

Mr. Carter: Are there not many, many disabilities suffered by members of these organizations that are not reported herein?

Mr. Hawley: Yes, sir.

Mr. Carter: Will you explain what is known as disability under the laws of the Brotherhood of Locomotive Firemen and Enginemen?

Mr. Hawley: A disability for which our laws permit us to pay the full amount of the certificate is from amputation of the hand or foot at above the ankle or the wrist joint, Bright's disease, blindness, consumption, locomotor ataxia and paralysis.

Mr. Carter: Then, taking into consideration amputation of hand or foot, consumption, blindness, paralysis, Bright's disease and the things aggregating 1,224 disability claims, 57 per cent of them were from blindness and amputation, I understand?

Mr. Hawley: Yes, sir.

Mr. Carter: What do you say, then, next, with regard to the experience of the year 1913?

Mr. Hawley: During the year 1913, of 30 amputations, 24 were the result of railroad accidents, and of the 20 cases of blindness, 10 resulted from railroad accidents.

Mr. Carter: About what membership did you have?

Mr. Hawley: In 1913?

Mr. Carter: Yes, sir.

Mr. Hawley: About 90,000, a little over.

Mr. Carter: Then if there were 24 amputations the result of railroad accidents, there would be six the result of some other cause?

Mr. Hawley: Yes, sir.

Mr. Carter: Is it fair to presume that had these men not been in railroad service they would have escaped all of these railroad accidents or practically all of them?

Mr. Hawley: It is fair to assume that, yes, sir.

Mr. Carter: Six amputations occurring from other than railroad accidents, would be 20 per cent of the whole, would it not, 30?

Mr. Hawley: Yes, sir.

Mr. Carter: Therefore, according to your statement here where a member would have the chance or the hazard of an amputation from other causes, he would have four times the chance or hazard because he is in the railroad service, is that true?

Mr. Hawley: Our records here show that.

Mr. Carter: What does this first table show? Please explain it?

Mr. Hawley: It shows the number of deaths and disabilities for which we paid claims from January 1st, 1904, to December 31st, 1913.

Mr. Carter: A period of ten years, is that right?

Mr. Hawley: Yes, sir.

Mr. Carter: Why didn't you include 1914?

Mr. Hawley: We hadn't our statistics prepared at the time this report was prepared.

Mr. Carter: Have you them prepared yet?

Mr. Hawley: They are not entirely completed, no, sir.

Mr. Carter: It would take some time to prepare them?

Mr. Hawley: Yes, sir.

Mr. Carter: Other work connected with closing the fiscal year's business detains them?

Mr. Hawley: We never had occasion to call for the reports

so early in January, consequently we have done other work and laid that aside.

Mr. Carter: What does this second table, at the foot of page 1, show?

Mr. Hawley: It shows causes of death from disease, from railroad accidents, and deaths from other causes, for which the organization paid claims for ten years, beginning January 1st, 1904, and ending December 31, 1913.

Mr. Carter: Just take the last year and read that. What was the total number of deaths of members for the year 1913?

Mr. Hawley: 589.

Mr. Carter: Of these—

Mr. Hawley: 295 were from disease, 243 from railroad accidents, 51 from other causes.

Mr. Carter: The per cent does not seem to be as high here as the average.

Mr. Hawley: That may be.

Mr. Carter: Take the year above, take the year 1912.

Mr. Hawley: 251 from disease, 253 from railroad accidents, 54 from other causes. Total 558.

Mr. Carter: How do you segregate disease from other causes?

Mr. Hawley: Well, other causes would be suicide, or a man being murdered, or meeting death in any way except from disease of some kind.

Mr. Carter: Other than railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Then it would appear that in 1912 of all the members of this Brotherhood, two more died from railroad accidents than died from disease, or what might be known as natural causes?

Mr. Hawley: Yes, sir.

Mr. Carter: That is, a man has about a chance of 50-50 to die with his boots on, as they say in the West, if he is in this business.

Mr. Hawley: Yes, sir.

Mr. Carter: Do you know of any other class of men that are thus affected?

Mr. Hawley: Not to my knowledge.

Mr. Carter: What have you on page 2?

Mr. Hawley: Employment at the time of death. It shows the number of men who were employed as engineers, firemen, hostlers, and others.

Mr. Carter: Will you explain what the others are?

Mr. Hawley: People engaged in all vocations. Some of them are braking, some of them switching, some of them farmers, most every vocation. I think we have them die in nearly every vocation.

Mr. Carter: Does that represent men who formerly fired or ran engines, and who have either been dismissed from the service or knew when they had enough, and quit?

Mr. Hawley: They must have fired an engine at one time in order to join the organization.

Mr. Carter: Does it represent men who lose out during times of depression when they are cut off the engineers' and firemen's lists?

Mr. Hawley: I presume some of them would be included amongst those.

Mr. Carter: Do you notice a growing number of those? I note that "others" increased from 65 in 1904, to 130 in 1913.

Mr. Hawley: The record would indicate that they are gradually on the increase.

Mr. Carter: If a man is dismissed by a railroad company, he does not have to withdraw from the organization, does he?

Mr. Hawley: No, sir.

Mr. Carter: He retains his membership?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you find that the retention of a comparatively large number of members who are not in the railroad service tends to keep the expense of our insurance down?

Mr. Hawley: Yes, sir.

Mr. Carter: It would be profitable if we would have a lot more out of the railroad service, would it not?

Mr. Hawley: I don't think we would have near as many deaths.

Mr. Carter: It would not cost us as much?

Mr. Hawley: No, sir.

Mr. Carter: Suppose I should say to you that there are probably six or seven thousand firemen, say, who were in the service of the railroads participating in this arbitration, that

are not now in the service, that accounts for a great number of men being out of the service, does it not?

Mr. Hawley: Yes, sir.

Mr. Carter: For instance, suppose 7,000 men have been laid off by these railroads participating in this arbitration, some of whom will never return to service, and yet they retain their membership, that would add to the list of men that you cite here as "others?"

Mr. Hawley: Yes, sir.

Mr. Carter: Is it not a fact, from your observation, that a large number of locomotive firemen, prefer to brake, they quit and go into the braking service?

Mr. Hawley: Our records show that a great many of our deaths, or at least a great many members at the time of death are brakemen.

Mr. Carter: Does it not show also that these brakemen become conductors?

Mr. Hawley: We have some few conductors whose deaths are reported.

Mr. Carter: Do you have switchmen?

Mr. Hawley: Now and then a switchman.

Mr. Carter: Killed?

Mr. Hawley: Yes, sir.

Mr. Carter: You don't know how many members you have that are switchmen?

Mr. Hawley: No, sir.

Mr. Carter: You have a large number of deaths of members who are not in the railroad service at all?

Mr. Hawley: Yes, sir.

Mr. Carter: They are shown herein, are they?

Mr. Hawley: Yes.

Mr. Carter: Take the deaths now for ten years, and read them for the benefit of the Board. The total for ten years amounts to how many deaths?

Mr. Hawley: 5,026.

Mr. Carter: How many of these were engineers?

Mr. Hawley: 1,292.

Mr. Carter: How many firemen?

Mr. Hawley: 2,663.

Mr. Carter: How many hostlers?

Mr. Hawley: 105.

Mr. Carter: How many others?

Mr. Hawley: 866.

Mr. Carter: Turn to page 3, and tell us what that shows.

Mr. Hawley: It shows causes of death, from railroad accident, from disease, or at least the number of deaths from railroad accidents, from disease, and from other causes, and the percentage that each bears to the total number of deaths from 1904 to 1913.

Mr. Carter: Briefly, read the percentages by years down that column and show how they vary?

Mr. Hawley: In 1904—

Mr. Carter: Read them from 1904 to 1913, just without reading the years.

Mr. Hawley: Railroad accidents, 52; disease, 42; other causes, 7.

Mr. Carter: I did not mean that, Mr. Hawley. I want to know what percentage are deaths from railroad accidents, for the ten periods, 52, for instance.

Mr. Hawley: 52, 52, 51, 49, 44, 44, 50, 41, 45, 41.

Mr. Carter: They vary, do they not?

Mr. Hawley: Yes, sir.

Mr. Carter: Is there a gradual decline in the percentage of railroad accidents?

Mr. Hawley: It goes up and down a little.

Mr. Carter: It seems that the highest was at the beginning, does it not?

Mr. Hawley: Yes, sir. I see in the year 1910 we went up to 50.

Mr. Carter: Do you believe that the gradually increasing numbers of members of this Brotherhood who are no longer in railroad service would have a tendency to reduce the percentage of deaths from railroad accidents?

Mr. Hawley: It would have a tendency to reduce them to some extent.

Mr. Carter: But I note that where it refers to "others" that there has been a slight increase, the highest year seems to be 1911?

Mr. Hawley: Yes, sir.

Mr. Carter: Turn to the next page, Mr. Hawley, what does that show, the first table?

Mr. Hawley: It shows the causes of disability. It shows the number of disability claims paid for the several different causes for the ten years beginning January 1st, 1904, to December 31, 1913.

Mr. Carter: Without taking up time in reading it by years, read the totals, and the causes which resulted in disability?

Mr. Hawley: Amputation, 544; Bright's disease, 62; blindness, 147; consumption, 218; locomotor ataxia, 78; paralysis, 175; a total of 1,224.

Mr. Carter: 544 is what percentage of 1,224? Is that the 47 per cent you are talking about?

Mr. Hawley: Amputations show 44 per cent.

Mr. Carter: What is the percentage for the year? You don't give the per cent, do you?

Mr. Hawley: 57 per cent by blindness and amputation; 44 per cent of the 57 is amputations, 13 per cent is from blindness.

Mr. Carter: Then, amputations amounted to more than a third of all the disabilities, including Bright's disease, blindness, consumption, locomotor ataxia and paralysis?

Mr. Hawley: Yes, sir.

Mr. Carter: Mr. Stone has estimated here it is 44.4 per cent for amputations of all these liabilities. Then this white plague we have heard so much about is not half as dangerous as the railroad plague, is it?

I see you report here 218 cases of consumption, while you report 544 cases of amputation, is that true?

Mr. Hawley: Yes, sir.

Mr. Carter: In order to expedite matters, let us pass to the next table, "Employment at time of disability."

Mr. Hawley: It shows employment at time of disability of those to whom disability claims were paid.

Mr. Carter: Read the totals.

Mr. Hawley: The total is 1,224. 302 engineers, 566 firemen, 41 hostlers, and 315 others.

Mr. Carter: Is there a gradual increase from 1904 to 1913 for "others," commencing at 21, 31 and you close at 48, do you not?

Mr. Hawley: Yes, sir.

Mr. Carter: For 1913?

Mr. Hawley: It goes up and down.

Mr. Carter: Does that reflect the same idea expressed with regard to deaths, that these others are men now out of employment?

Mr. Hawley: Yes, sir.

Mr. Carter: And their numbers are growing?

Mr. Hawley: Yes, sir.

Mr. Carter: And reducing the percentage arising from railroad troubles?

Mr. Hawley: Yes, sir.

Mr. Carter: Please explain that which you have on page 5. Following your own methods, explain it.

Mr. Hawley: It is disabilities resulting from amputation and loss of eyesight. It shows the number of amputations and the loss of eyesight by engineers, firemen and others, for the period beginning January 1st, 1909, and ending December 31st, 1913.

Mr. Carter: Why do you show only five years there?

Mr. Hawley: The records, prior to 1909, were not kept in such a manner that we could go into it as well as we could from 1909.

Mr. Carter: Is it a fact that there is a great change in the laws of the organization with regard to eyesight?

Mr. Hawley: There is with reference to eyesight. There has been a great change in the laws of the organization with reference to reports which our lodges are compelled to make to us of the causes of deaths and disabilities.

Mr. Carter: You have now access to greater detailed information than you formerly did?

Mr. Hawley: We compel a great deal more information now than we ever did before 1909.

Mr. Carter: Just read those lines for each year beginning with 1909.

Mr. Hawley: Of the 136 disability claims paid in 1909, 56 were for amputations, 19 loss of eyesight, and 51 others.

Mr. Carter: Do we understand by that that considering the white plague and the Bright's disease, and all these other

things like paralysis and locomotor ataxia, that 56 amputations resulted, while only 51 from all these others?

Mr. Hawley: Yes, sir.

Mr. Carter: Go to the next year.

Mr. Hawley: Of the 139 disability claims paid in 1910, 63 were for amputation; 22, loss of eyesight; and 54 others.

Mr. Carter: 1911?

Mr. Hawley: 1911, of the 140 disability claims paid, 54 were amputations, 31 loss of eyesight, 55 others. In 1912, of the 139 disability claims, 64 were for amputation, 34 loss of eyesight and 41 others. 1913, of 144 disability claims, 51 were for amputation, 34 for loss of eyesight and 59 others.

Mr. Carter: Now, under these statements you have just read, you show a distribution by occupation, do you not?

Mr. Hawley: Yes, sir.

Mr. Carter: Let us take the first column. I notice that there are only six known as "others" who suffered amputation in 1909; 9 in 1910; 10 in 1911; and only 3 in 1912; and 21 in 1913. How do you account for such a variation?

Mr. Hawley: Well, that could possibly be accounted for in several different ways. I would not feel disposed to make any definite statement as to what brought about that result. It is a general run, I think that applies with all insurance organizations.

Mr. Carter: Blindness does not seem to increase that way. It seems to increase in a steady ratio?

Mr. Hawley: Prior to the 1st of January, 1909, in order for us to pay a total disability claim, the member had to be permanently and totally blind in both eyes, but beginning with January 1, 1909, we began to pay for the loss of one eye, and I think the records will continually show that we have been paying more disability claims for blindness since the 1st of January, 1909, than we have at any time. I think the figures somewhere here will show that.

Mr. Carter: Then your experience shows that many more members lose one eye than lose both eyes?

Mr. Hawley: Yes, sir.

Mr. Carter: Will you describe the tables on pages 6 and 7. I presume the summary on page 7 will give the information, will it not?

Mr. Hawley: Yes, sir. It shows the causes of amputation for engineers and firemen, for the years 1909 to 1913.

Mr. Carter: That is by years.

Mr. Hawley: That is by years.

Mr. Carter: Do you show the same information in the summary there, disregarding the engineers and firemen?

Mr. Hawley: Yes, sir.

Mr. Carter: You do not include anybody but engineers and firemen in this table, do you?

Mr. Hawley: No, sir.

Mr. Carter: Not hostlers?

Mr. Hawley: No, sir

Mr. Carter: I note you have a correction there for collisions, for 1909. That was a typographical error, was it?

Mr. Hawley: Typographical error. By reference to the year 1909, on page 6, you will see that shows 4 there, and it is a typographical error in printing.

Mr. Carter: It should be four instead of twenty.

Mr. Hawley: It should be four instead of twenty.

Mr. Carter: That is proven by the addition in the total, is it not?

Mr. Hawley: Yes, sir.

Mr. Shea: Mr. Hawley, your total is wrong, is it not?

Mr. Hawley: No, I think it shows 50.

Mr. Shea: That is right, 50. It is right.

Mr. Carter: I note there has been a decrease in amputations since 1909; you have 50, 54, 44, 61 and 30. How do you account for that?

Mr. Hawley: Probably it would be accounted for the same as with the other cases already referred to.

Mr. Carter: What do you mean by "miscellaneous" there at the close of that page, under the heading "Summary of Causes of Amputation?"

Mr. Hawley: That shows that either engineers or firemen have lost their hand or their foot when they were doing something besides in the railroad service. Their occupation was that of fireman or engineer, but the accident which resulted in the loss of the hand or foot was not caused by the railroad or by an accident on the railroad.

Mr. Carter: Well, would that indicate that our experience

with regard to deaths from railroads is different from that in regard to amputations?

Mr. Hawley: I don't just understand your question there.

Mr. Carter: Well, it seems to me here that a comparatively large number of engineers and firemen suffered amputation from other than railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: I note that there are only six others in 1913, while there are twenty others in 1912, and only eleven others in 1911.

Mr. Hawley: I think you will find that the percentage won't vary very much in any of the years, taking the total number.

Mr. Carter: If you would exclude these miscellaneous, would the other railroad accidents remain approximately along the same line?

Mr. Hawley: The percentage of those who lose a hand or foot increases or decreases a little during the five years. I think you will find the highest percentage is in the year 1913, which is 80 per cent.

Mr. Carter: Now, let us take a given number of men, say 50,000 or 75,000—if of that we will say 75,000, 20 of them suffer amputation from causes other than railroad accidents, and none of them were in railroad employment, would the logical conclusion that only 20 would suffer amputation?

Mr. Hawley: I would like to have that question read.

Mr. Carter: Will you read the question, please?

(Question repeated by the reporter.)

Mr. Carter: If they were not in railroad employment, would they be liable to suffer amputation because of railroad accident?

Mr. Hawley: No, sir.

Mr. Carter: Then, because they were in railroad employment, I understand, instead of suffering twenty amputations in 1913, they suffered sixty-one, is that true—taking the column 1912 you show there, segregated under different heads, different titles, forty-one amputations resulting from railroad accidents; you show 20 resulting from miscellaneous—have you got the page and column I have here?

Mr. Hawley: Yes.

Mr. Carter: The point I wanted to bring out was this, that of this membership, 20 would have occurred, whether they were in railroad service or not. They were from miscellaneous causes other than railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: And from the fact they were in railroad service, there were 41 additional amputations, is that not true?

Mr. Hawley: Yes, sir.

Mr. Carter: Thus, taking 1912, a man would have about three chances to one for amputation because he was in railroad service?

Mr. Hawley: Yes, sir.

Mr. Carter: Now, if we take 1913, the proportion would be still greater, that is, 6 to 24, 4 to 1, making a total of 30?

Mr. Hawley: Yes, sir.

Mr. Carter: What have we here on page 8 and page 9?

Mr. Hawley. It shows the causes of loss of eyesight. There is a summary on page 9. This is the cause of loss of eyesight to engineers and firemen.

Mr. Carter: You haven't the total there by years, or causes, have you; you would have to add each column to find out how many eyes were lost, because of bursting lubricator glass—you have a column there for 1909, 1910, 1911, 1912 and 1913; but you do not show the total for the five years?

Mr. Hawley: No, sir, I show it by years, 17, 16, 28, 29 and 20.

Mr. Carter: The bursting of a lubricator glass would be ten?

Mr. Hawley: Ten.

Mr. Carter: Bursting water glass would be?

Mr. Hawley: 24.

Mr. Carter: Bursting blower pipe?

Mr. Hawley: One.

Mr. Carter: Collapsed flue?

Mr. Hawley: Two.

Mr. Carter: Struck in eye by splinter?

Mr. Hawley: One.

Mr. Carter: Struck by lump of coal?

Mr. Hawley: Three.

Mr. Carter: Heat from fire box?

Mr. Hawley: One.

Mr. Carter: Now, you speak of heat from fire box. Do you mean to tell me there is only one case of blindness from heat of fire box?

Mr. Hawley: There is only one case reported to us where the loss of eyesight came from heat from the fire box.

Mr. Carter: Then if it was reported as a cataract, you would not say it was from heat from fire box, would you?

Mr. Hawley: No.

Mr. Carter: If it was atrophy of the optic nerve, you wouldn't say that was from heat from fire box, would you?

Mr. Hawley: No.

Mr. Carter: You just simply report in here the cause of blindness noted in the papers filed.

Mr. Hawley: Just as they are filed with us.

Mr. Carter: Now, no use going on down. Now, let me see about this last, this "Miscellaneous." What is this "Miscellaneous?" That is from other causes than railroad accidents?

Mr. Hawley: Yes.

Mr. Carter: Now, we have not got a total here that shows, but I understand that that miscellaneous of ten, we will say in 1913, would indicate or would show the usual causes of blindness, from disease, or something of that kind?

Mr. Hawley: Something that caused the blindness aside from those causes enumerated above "Miscellaneous."

Mr. Carter: But suppose it could be shown that of that ten, five we will say, were suffering from cataract, and the cataract was a direct result of the heat and light of the fire box, you would not call that a railroad accident, would you?

Mr. Hawley: No, if it was reported to us as caused from the heat from the fire box it would be so enumerated in the report.

Mr. Carter: But it is not that way reported?

Mr. Hawley: If it is reported as a cataract we enumerated it there under the head of miscellaneous.

Mr. Carter: Under the head of miscellaneous. Suppose it was atrophy of the optic nerve, how would you list it?

Mr. Hawley: I would list it under the head of miscellaneous.

Mr. Carter: Regardless of what caused the atrophy?

Mr. Hawley: Yes, sir.

Mr. Carter: I notice you have an introductory notice here on page 9, and a table on page 10. What is that?

Mr. Hawley: It says, "Benevolent claims paid, and causes of injury."

Mr. Carter: Not "paid."

Mr. Hawley: What?

Mr. Carter: They are not all paid.

Mr. Hawley: Claims and causes of injury.

Mr. Carter: Now, will you explain for the benefit of the Board, what you mean by the Benevolent Claims, and explain the law from which they are derived?

Mr. Hawley: Under the laws of the organization we have what is known as a Benevolent Department. A member becomes afflicted with, or totally disabled from some affliction that does not come within the requirements of the constitution as enumerated on the former page in this report. They file their papers with me as general secretary and treasurer, and under the law I am compelled to disapprove the claim.

Mr. Carter: Because it does not come within the law?

Mr. Hawley: It does not come within the law, and then the papers are all referred to the Board of Directors when they meet. They have authority, after examining the papers, if they believe the applicant is in need of assistance, and deserves charitable consideration, to approve the payment to him of all or a portion of the amount of his beneficiary certificate. If they approve payment of all of it, his certificate is taken up and cancelled, and he then becomes what we call a funeral benefit member, and is entitled to a funeral benefit at the time of his death. If, on the other hand, they feel disposed to allow him a portion of the amount of his certificate, then we reduce the certificate which he holds at the time the allowance is made, and give him one of the next lowest denomination, and he continues to pay on the lower amount of the certificate. Possibly the word "Benevolent," does not just tell the exact story, but that is the law and that is the name we felt disposed to give it.

Mr. Carter: There are some important changes with regard to consumption of the lungs, tuberculosis, since the beginning of the year 1914, are there not?

Mr. Hawley: Yes, sir.

Mr. Carter: That would not be covered in this report at all?

Mr. Hawley: No, there is nothing in here covering 1914 at all.

Mr. Carter: About how much has been paid out from this benevolent fund for the five years you cover here?

Mr. Hawley: In the neighborhood of $400,000 to $450,000.

Mr. Carter: Many of these claims, we want to pay the entire amount, but under the laws of the state we could not pay them from our beneficiary fund, could we?

Mr. Hawley: No, sir.

Mr. Carter: Because the disability is not in strict accordance with the constitution of the organization?

Mr. Hawley: Yes, sir.

Mr. Carter: How do you raise this benevolent fund?

Mr. Hawley: After the Board of Directors meet, and file a report of the amount which they have allowed to the different applicants, we figure out about how much it would cost each beneficiary member to make up that amount.

Mr. Carter: Per capita assessment?

Mr. Hawley: Per capita assessment, and levy that assessment. If it would require 55 cents, we in all probability would levy 75 cents, in order to have enough, and that is held over until the Board meets again. Possibly the next time it will only be necessary to levy a 25 cent assessment. It would depend altogether upon the amount that the Board of directors felt disposed to allow to the different applicants.

Mr. Carter: The time for adjournment has been reached and so—

The Chairman: We will take an adjournment now until 10 o'clock tomorrow morning.

(Whereupon, at 5 o'clock P. M., January 12, 1915, an adjournment was taken to January 13, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 13, 1915.

Met pursuant to adjournment at 10 o'clock A. M.
Present: Arbitrators and parties as before.

A. H. HAWLEY was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Carter: Mr. Hawley, I find in yesterday's proceedings, pages 2540 and 2541, the following:

"Mr. Carter: I ask you the question, do you know positively that 47 out of every 100 deaths of members of the Brotherhood of Locomotive Firemen and Enginemen are the result of railroad accidents?

"Mr. Hawley: Yes, sir.

"Mr. Nagel: Do you mean during service, or do you embrace men who die after they are relieved from service?

"Mr. Hawley: The exhibit here shows that 47 per cent of the members of our organization died as the result of railroad accidents.

"Mr. Nagel: Do they continue to be members after they leave the service?

"Mr. Hawley: Some of them do, but the exhibit here shows those who were engaged in other vocations. That is taken care of on page 3."

Mr. Hawley, do you know positively that this 47 per cent

who die from railroad accidents were in the service of railroads when these accidents occurred?

Mr. Hawley: Yes.

Mr. Carter: This 47 per cent who die of railroad accidents, does not include men who might be traveling, or something of that kind. They were killed by actual railroad accidents?

Mr. Hawley: Yes.

Mr. Carter: And they were in the employ of the railroad companies?

Mr. Hawley: Yes, sir.

Mr. Carter: Mr. Hawley, have you prepared a statement showing by years the number of trains from railroad accidents, and the number of claims from disease, and the number of claims from other causes, and the total, and the amount of money disbursed on account of these claims?

Mr. Hawley: Yes, sir.

Mr. Carter: Mr. Chairman and Gentlemen, we have handed a copy of this statement to the stenographers with a request that it be written in the record just as prepared, even though there is a discussion while it is being introduced. Is that permissible?

The Chairman: I see no objection.

(The statement referred to is as follows:)

Year.	Number Claims.	Railroad Accidents.	Number Claims.	Disease.	Number Claims.	Other Causes.	Total.	
1904	236	$321,500.00	182	$260,000.00	35	$41,700.00	453	$623,200.00
1905	260	366,500.00	203	286,750.00	33	47,500.00	496	700,750.00
1906	234	337,500.00	196	276,300.00	31	44,650.00	461	658,450.00
1907	287	405,000.00	260	361,912.50	34	48,700.00	581	815,612.50
1908	195	216,266.67	199	278,750.00	42	49,000.00	436	589,016.67
1909	182	243,403.00	195	253,994.80	34	69,500.00	411	566,897.80
1910	263	366,000.00	227	306,250.00	29	34,500.00	509	706,750.00
1911	214	293,000.00	250	350,777.41	58	71,500.00	522	715,227.41
1912	253	349,500.00	251	352,500.00	54	65,000.00	558	767,000.00
1913	243	326,500.00	295	413,362.25	51	63,000.00	589	802,862,25
Totals ..	2367	$3,270,169.67	2258	$3,140,596.96	401	$535,050.00	5026	$6,945,816.63

Mr. Carter: What has been the aggregate number of claims paid during the ten-year period because of railroad accidents?

Mr. Hawley: 2,367.

Mr. Carter: That is within the ten years?

Mr. Hawley: Yes, sir.

Mr. Carter: What has that cost the locomotive firemen and enginemen of this country in dollars and cents?

Mr. Hawley: $3,270,169.67.

Mr. Carter: We heard a great deal during the testimony of Mr. Lauck, about railroads setting aside a fund for depreciation of rolling stock, of locomotives, of road beds, etc. Is this not practically an amount set aside by the firemen themselves for depreciation in the men or lives—the lives of their men?

Mr. Hawley: It would be termed that if you put it in that way.

Mr. Carter: Therefore, while the railroads, with the consent of the Interstate Commerce Commission, are setting aside annually a certain amount for depreciation of machinery, etc., this represents what it is costing the engineers and firemen of this Brotherhood out of their own pockets for the human wrecks. Isn't that true?

Mr. Hawley: Yes, sir.

Mr. Carter: Does this statement here show anything else of especial interest?

Mr. Hawley: It shows the number of claims paid on account of disease, and the amount which is represented by the payment of those claims. It shows the number of claims paid from other causes, and the amount represented by that, together with a total of all of the claims paid for railroad accidents, disease and other causes, and the amount represented to pay those claims.

Mr. Carter: Will you read the total amount that the Brotherhood of Locomotive Firemen and Enginemen have paid in the ten years? First, I will ask, are these both death and disability claims?

Mr. Hawley: No, sir; these are just death claims.

Mr. Carter: Will you read the amount of money that has been disbursed by the Brotherhood of Locomotive Firemen and Enginemen within the ten year period, for all deaths?

Mr. Hawley: $6,945,816.63.

Mr. Carter: Now, again, read the amount that has been disbursed on account of deaths from railroad accidents?

Mr. Hawley: $3,270,169.67.

Mr. Carter: Does that show approximately the 47 per cent that you referred to yesterday?

Mr. Hawley: Yes, sir.

Mr. Carter: Approximately?

Mr. Hawley: Yes, sir.

Mr. Carter: Have you prepared a statement showing the number of members for each of these ten years, the increase in membership by number, and by per cent?

Mr. Hawley: Yes, sir.

Mr. Carter: I am going to hand this to the stenographer and we will ask that this be inserted in the record as it appears.

(The statement is as follows):

Date.	Total Membership.	Number.	Per Cent.
1904	54,434	....	....
1905	55,287	853	1.57
1906	58,849	3,562	6.04
1907	62,916	4,067	6.46
1908	66,408	3,492	5.56
1909	65,315	1,093	1.66
1910	73,649	8,334	12.76
1911	79,942	6,293	8.55
1912	85,292	5,350	6.69
1913	91,108	5,816	6.82

Mr. Carter: Now, I will ask you to explain what that table shows. I haven't an extra copy.

Mr. Hawley: It shows the total membership of the organization at the close of the year, beginning with January 1, 1904, and ending December 31, 1913. It shows the increase or decrease in membership for those several years. There is an increase in eight years, and a decrease in one year. It also shows the per cent of increase or decrease in the membership in each of the several years.

Mr. Carter: Mr. Hawley, have you also prepared a statement showing the amount paid in death and disability claims by the organization, for ten years, beginning January 1, 1904, and ending December 31, 1913?

Mr. Hawley: Yes, sir.

Mr. Carter: I will ask also to have that introduced, Mr. Chairman and gentlemen.

(Said statement is as follows):

TOTAL AMOUNT PAID IN DEATH AND DISABILITY CLAIMS BY THE ORGANIZATION FOR TEN YEARS BEGINNING JANUARY 1, 1904, AND ENDING DECEMBER 31, 1913.

1904	$774,700.00	1909	$762,147.80
1905	838,250.00	1910	913,000.00
1906	809,950.00	1911	932,277.41
1907	983,362.50	1912	970,500.00
1908	771,016.67	1913	1,020,612.25

Mr. Carter: Will you read the amounts annually that have been paid in disability claims?

Mr. Hawley: This is not disability claims. It is the total amount paid by the organization for all claims, both death and disability.

Mr. Carter: All claims, death and disability?

Mr. Hawley: Yes.

Mr. Carter: Will you read the amounts by years?

Mr. Hawley: 1904—

Mr. Carter: Pardon me, Mr. Hawley. Omit anything below 100. Just say $774,000.

Mr. Hawley: $774,000. $838,000—

Mr. Carter: Name the year.

Mr. Hawley: That is 1905.

1906, $809,000.

1907, $983,000.

1908, $771,000.

1909, $762,000.

1910, $913,000.

1911, $932,000.

1912, $970,000.

1913, $1,020,000.

Mr. Carter: You haven't a total there, have you, for a ten-year period?

Mr. Hawley: No; I have it about half added up.

Mr. Carter: This was prepared very hurriedly?

Mr. Hawley: Very hurriedly this morning.

Mr. Carter: Mr. Chairman and gentlemen, within a few minutes we will have a total which we would like to introduce also.

Is it possible, Mr. Hawley, that in comparing the increase of membership with the increase in railroad accidents, that the percentage of increase in railroad accidents does not progress as rapidly as that of the membership?

Mr. Hawley: From our figures it would indicate that.

Mr. Carter: I asked you yesterday, if it was not a fact that, gradually, a larger proportion of the membership of this organiation are drifting from railroad service. Is that true?

Mr. Hawley: Yes, sir.

Mr. Carter: Would that not partially account for the less

decrease in the number of railroad accidents that there are in the number of members?

Mr. Hawley: Yes, sir, that might account for it, but the increase in membership would show that the man who came into the organization—well, in reality the increase in membership is an increase in men in actual railroad service.

Mr. Carter: I know, but presuming we had a hundred men in a given lodge, all of whom were in railroad service in 1904, and notwithstanding the fact that every man admitted to that lodge during this ten-year period was in railroad service, a considerable proportion of the older men drifted out of the railroad service, so that, at the end of the ten-year period, of 200 members, there were only 175 in railroad service, would not that 25 tend to decrease the proportionate number of railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Mr. Hawley, are you acquainted with the application of the Federal laws governing the safety appliances?

Mr. Hawley: I am not as familiar with the law as it stands today as I was a few years ago.

Mr. Carter: Were you ever in the service of the Federal Government, or in the department of safety appliances?

Mr. Hawley: Yes, sir.

Mr. Carter: How many years?

Mr. Hawley: Eight years.

Mr. Carter: You went in the safety appliance department of the Federal Government when the automatic coupler law was gradually being enforced, is that not true?

Mr. Hawley: Yes, sir.

Mr. Carter: Did you not find a marked improvement in the condition of cars—their general condition also during that eight years, because of the Federal Law?

Mr. Hawley: The general condition of railway equipment gradually improved. During the last years I was in the service of the Government there was a very marked improvement in the equipment, so far as air brakes and automatic couplers was concerned. That possibly might apply to the general condition of the cars. Of course, that was a matter that we had no jurisdiction over; but observation would indicate that the general

condition of the cars and locomotives, in every shape, was better than it was when I went to work for the Government.

Mr. Carter: Did you find by the adoption of the automatic couplers there appeared to be a great saving to railroads in the handling and making up of trains; that is, could trains be made up in yards much more expeditiously with automatic couplers than with the old link and pin couplers?

Mr. Hawley: Yes, sir, they could.

Mr. Carter: Notwithstanding the very aggressive opposition of the railroads to the adoption of the automatic coupler law, and notwithstanding they assume that it is a financial burden upon them, does your observation lead you to believe that it was a profitable investment?

Mr. Hawley: My observation would lead me to believe that the equipment of the cars and locomotives with automatic couplers made it possible for the railroad companies to handle a much larger volume of business than they would have been able to handle with the old link and pin.

Mr. Carter: With the same expense for labor?

Mr. Hawley: With the possible increases in wages which have been paid to employes who handled the cars during that period.

Mr. Carter: The point I want to bring out is not to compensate for the increase in labor, but I want to know if, in your opinion, more cars can be handled and coupled together in the making up of trains, with automatic couplers than with the old link and pin couplers?

Mr. Hawley: I would say that they could; yet I would not want to testify to that as an expert. Indications show that they could handle a great many more. The railroad officials that I met during my time with the government seemed to feel that the business was handled a great deal easier with the automatic couplers and more business was handled than with the old link and pin.

Mr. Carter: Then, Mr. Hawley, if my friend, counsel for the railroads, should attempt to show that the enactment of the Safety Appliance Law by the Federal Government and its enforcement has placed a financial burden upon the railroads, so far as investment of capital is concerned, do you not believe

that this same adoption of automatic couplers has been profitable, even considering the additional financial burden?

Mr. Hawley: I would think so.

Mr. Carter: Don't you think they think so?

Mr. Hawley: I can hardly speak for them.

Mr. Carter: Is it not a matter of general knowledge?

Mr. Hawley: I think it is a matter of general knowledge among all the railway officials, that that is a fact.

Mr. Carter: I am asking you as a man who has been directly connected with the application of this law, if you believe the railroads now would, of their own accord, presuming they could do so without additional expense, now abandon the automatic coupler and again resort to the link and pin?

Mr. Hawley: No, sir.

Mr. Carter: Mr. Hawley, during this period that you served the government as safety appliance inspector, did you observe the application of the Automatic Air Brake Law?

Mr. Hawley: Yes, sir.

Mr. Carter: You noticed a marked improvement from year to year, did you not?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you think that possibly the same statements with regard to profitable investment will apply to the automatic air brakes as will apply to the old hand brake?

Mr. Hawley: I would think so; yes, sir.

Mr. Carter: Do you think that freight trains, or passenger trains, for that matter, could be transported at the high speed that now is the practice, with safety to the public, without the automatic air brake?

Mr. Hawley: No, sir.

Mr. Carter: Do you believe that if the railroads could, of their own volition, and presuming that it would cost them nothing to make the change, do you believe they would now abandon the automatic air brake and go back to the old hand brakes?

Mr. Hawley: No, sir.

Mr. Carter: If it is shown here that the Federal Air Brake Law placed upon the railroads certain financial burdens, does it not appear that capital invested in automatic air brakes was profitably invested from a railroad standpoint?

Mr. Hawley: That would be my judgment.

Mr. Carter: Mr. Hawley, do you know of any other safety appliance laws that were being enforced at the time you served as safety appliance inspector?

Mr. Hawley: I cannot call to mind any that was being enforced at that time, or any other Federal law.

Mr. Carter: You have a general knowledge of the law known as the Ash Pan Law, have you not?

Mr. Hawley: Yes, sir.

Mr. Carter: You have a general knowledge of what is known as the Hours of Service Law, have you not?

Mr. Hawley: Yes, sir.

Mr. Carter: You have a general knowledge of what is known as the Locomotive Boiler Inspection Law, have you not?

Mr. Hawley: Yes, sir.

Mr. Carter: You have no immediate knowledge, however, that that has been profitable to the railroads?

Mr. Hawley: No, sir.

Mr. Carter: That would perhaps incur expense without any direct return, wouldn't it?

Mr. Hawley: Well, I could not say as to that.

Mr. Carter: I mean to say that if railroads were required to operate more men by keeping their boilers in safe condition, we would not be able to show directly that they had direct returns in dollars and cents, would we?

Mr. Hawley: I do not think so.

Mr. Carter: Unless the locomotives could pull heavier trains with boilers in good condition?

Mr. Hawley: No, sir.

Mr. Carter: During all of this period, do you believe that these Federal laws have tended to reduce the number of railway accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Then, in addition to the number of members who have drifted out of railroad service, probably reducing the percentage of railroad accidents, would not these Federal Safety Appliance Laws tend to reduce the number of railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Probably some members of the Managers Committee know all about that, don't they? For instance, when a representative of the railroads threatened the railroad men

of this country with a reduction of wages if the Automatic Coupler Law was enacted, a certain man who was then connected with the Railway Board, said to this railway official, "We will meet that situation when it arises." Do you remember that quotation?

Mr. Hawley: I remember that I was told that the gentleman made that remark. I have every reason to believe that it was true.

Mr. Carter: Well, I happen to remember that, because I was still in the service at that time. Do you know anything about the opposition to the adoption of the air brakes?

Mr. Hawley: Nothing only the articles which appeared in the different papers which I read at that time, in opposition to the application of the air brakes particularly to freight car equipment

Mr. Carter: Do you remember the opposition to what is known as the Ash Pan Law?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you remember the opposition of the railroads to the Hours of Service Law?

Mr. Hawley: Yes, sir.

Mr. Carter: Was not the basis for each of these laws, or rather the opposition to each of these laws, the cost to the railroads?

Mr. Hawley: That was the general run of the articles that were published in connection with it.

Mr. Carter: Has not this cost which they feared been a profitable investment from an operative standpoint?

Mr. Hawley: That would be my judgment.

Mr. Carter: Now, Mr. Hawley, do you know anything about the enactment of the Boiler Inspection Law?

Mr. Hawley: Nothing only the Boiler Inspection Law was enacted.

Mr. Carter: Do you know whether there was any opposition on the part of the railroads to the enactment of that law, or not?

Mr. Hawley: The same thing would apply.

Mr. Carter: You are mistaken, Mr. Hawley. I want to state, for the information of the Board, that when it came to the enactment of the Boiler Inspection Law, the Engineers and Firemen had the hearty co-operation of the railroads of this country,

and I take this occasion to express our appreciation for their co-operation.

Mr. Hawley: I hardly think that applied at the first time when they started to advance the Boiler Inspection Law.

Mr. Carter: That is the idea, Mr. Hawley. Have not they discovered by experience that these laws are really profitable to the railroads, instead of detrimental or unprofitable, as they once feared?

Mr. Hawley: It would seem that way.

Mr. Carter: Have you any information in regard to the reduction of number of deaths because of the Locomotive Boiler Inspection Law?

Mr. Hawley: No, sir.

Mr. Carter: Mr. Chairman and gentlemen, I have here the last preliminary report of the Interstate Commerce Commission. I wish you would read the report, at the bottom of page 57.

Mr. Hawley: Reading from the caption above the table at the bottom of the page, it shows:

"Therefore, the improvement is more accurately indicated by the reduction in the number of casualties resulting from boiler defects, as shown by the following table:

"Accidents in 1912, 856; accidents in 1913, 820; accidents in 1914, 555."

Mr. Carter: Does that show a marked decrease in accidents from boiler explosions, and so forth?

Mr. Hawley: Yes, sir.

Mr. Carter: Read the next line, please.

Mr. Hawley: The next line—

Mr. Carter: Were they boiler explosions?

Mr. Hawley: Boiler accidents, through collapsing, such as that.

Mr. Park: Squirt holes.

Mr. Hawley: "Accidents," it says here.

Mr. Carter: Accidents resulting and coming under the provisions of the Locomotive Inspection Law.

Mr. Park: It does not show the fatalities.

Mr. Carter: Yes, sir; we are going to read that. Read "Killed" now.

Mr. Hawley: "Killed in 1912, 91; 1913, 36; 1914, 23."

Mr. Carter: Therefore, in a two year period it was reduced from 91 to 23. Is that true?

Mr. Hawley: Yes, sir.

Mr. Carter: Would that indicate, Mr. Hawley, that the old claim made by the railroads, that all boiler explosions were caused by low water, was a mistaken contention?—that is, in the old days they said it was the engineers' fault that their boilers exploded. Do these safety appliance inspectors connected with the boiler inspection department, inspect the engineers or the locomotives?

Mr. Hawley: The locomotives.

Mr. Carter: Would not this indicate that the old contention of the railroad officials, that all boiler explosions are occasioned by the neglect of duty of the engineer, was a mistaken contention?

Mr. Hawley: I think that one would pass that opinion on it if he was reading these figures.

Mr. Carter: This decrease from 91 killed by boiler accidents in 1912 to 23 in 1914, in a period of only two years—would not that indicate the efficiency and desirability of the Federal Locomotive Boiler Inspection Law?

Mr. Hawley: Yes, sir.

Mr. Park: Mr. Carter, was not there included in the 1912 period one explosion that killed 32 people?

Mr. Carter: I don't know, Mr. Park?

Mr. Park: So that there might be an abnormal condition in one year and not in another?

Mr. Carter: Well, then, let us take 1913 and compare it with 1914. How many were killed in 1913, when there was no explosion that killed so many?

Mr. Hawley: 36.

Mr. Carter: How many in 1914?

Mr. Hawley: 23.

Mr. Carter: About 50 per cent? How much is that decrease?

Mr. Hawley: A decrease of 36.1 per cent.

Mr. Carter: Now, how about the injured because of boiler accidents in three years?

Mr. Hawley: The injured was, in 1912, 1,005; in 1913, 911; in 1914, 614.

Mr. Carter: There was a decrease of what per cent?

Mr. Hawley: 1913 to 1914, 32.6 per cent.

Mr. Carter: I think you will find it is 38 per cent decrease, from 1912. It shows 32.6 per cent decrease from the previous year, but the decrease from 1912 was—

Mr. Hawley: 38 per cent.

Mr. Carter: Then, is not this conclusive evidence that when the locomotive engineers and firemen, through their respective brotherhoods, sought this legislation, it was not a frivolous effort on their part to unduly tax railroad companies?

Mr. Hawley: Yes, sir.

Mr. Carter: Going back to the main subject, do you attribute an apparent decrease in the percentage of railroad accidents to the total membership of the organization, somewhat to the application of these Federal laws?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you know anything about the adoption of automatic signals?

Mr. Hawley: Not very much.

Mr. Carter: There is no law upon that subject, is there?

Mr. Hawley: I don't think so.

Mr. Carter: Is it your opinion, as a practical railroad man and a government employe, that where we have automatic signals properly installed and maintained, that there is an apparent decrease in the number of railroad accidents, such as collisions?

Mr. Hawley: That would be my judgment, yes, sir.

Mr. Carter: If ever the time comes that the Interstate Commerce Commission, instead of these Brotherhoods, compels the adoption of automatic block signals, do you think that it will be a great saving in the lives not only of the employes, but of the traveling public, in avoiding collisions?

Mr. Hawley: It would seem that way to me.

Mr. Carter: Therefore, there is a general tendency, because of the enactment and enforcement of these safety appliance laws, to reduce the percentage of claims paid by the Brotherhood of Locomotive Firemen and Enginemen, on account of railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Now, Mr. Hawley, have you got any other re-

marks to make concerning disbursements from the beneficiary fund, not from the benevolent fund—would you like to make any statement concerning your experience and observation?

Mr. Hawley: Why, it would seem to me that everything has been covered about as well as it could be covered already.

Mr. Carter: Then we will take up the benevolent claims where we left off last evening. Turning to page 10, did you say yesterday that you had a general knowledge of the amount paid in benevolent claims during the past five years, I believe you said?

Mr. Hawley: Yes, sir, I figured that up last night, and it went to $463,000.

Mr. Carter: $463,000?

Mr. Hawley: Paid from January 1st, 1909, to December 31st, 1913.

Mr. Carter: Have you any information as to what proportion of that amount was paid on account of railroad accidents?

Mr. Hawley: No, I could not say as to that.

Mr. Carter: In this table on page 10, I note you segregate these benevolent claims and causes of injury by classes of causes, partial amputation, blind in one eye, partial blindness, sundry injuries, various afflictions, deafness, injury to hand or arm, injury to foot or leg, injury to back, injury to hip, injury to shoulder, injury to head, injury to spine, and partial paralysis. Does your general knowledge of the subject lead you to believe that a large proportion of these benevolent claims that have been paid were also caused by railroad accidents?

Mr. Hawley: This is the record of claims having been filed, that this record shows; not the claims that have been paid.

Mr. Carter: I understand that, but I am asking you from your observation of the subject, do you believe that a large proportion of this amount paid from the benevolent fund is paid on account of railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Carter: Then this would have to be added to the amounts shown in the other portions of your report as being paid from the benevolent fund, if we are to have a true index of the proportion of railroad accidents, so far as our deaths and disabilities are concerned?

Mr. Hawley: Yes, sir.

Mr. Carter: That is all.

CROSS EXAMINATION.

Mr. Sheean: Mr. Hawley, these various improvements in railroad operation that you speak of are reflected in the department of the Brotherhood that you have charge of?

Mr. Hawley: Yes, sir.

Mr. Sheean: Showing a constantly decreasing hazard in the employment?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, your organization covers the entire country?

Mr. Hawley: The United States and Canada.

Mr. Sheean: The United States and Canada?

Mr. Hawley: Yes, sir.

Mr. Sheean: And no one is eligible to membership who is not a locomotive fireman?

Mr. Hawley: Not since the 1st of January, 1914. Every man must be in actual service since that date. Prior to that time, a man who had, at one time, been a member and had left railroad service and desired to take up membership in the organization, was privileged to do so, no matter what vocation he was following; but since the 1st of January, 1914, he must be actually employed as a locomotive engineman.

Mr. Sheean: During the period covered by your tables, no one could become a member unless he had been at some time a locomotive fireman?

Mr. Hawley: No, sir.

Mr. Sheean: In the majority of the cases I assume the applications were made by the young men coming into service, the new members?

Mr. Hawley: A great many of them; the greater portion of them.

Mr. Sheean: The greater portion?

Mr. Hawley: Yes, the greater portion.

Mr. Sheean: Have you any means of determining what the proportion of your total membership is that is comprised in actual firemen, from year to year?

Mr. Hawley: No, I have not. There has been an attempt

made by Mr. Carter to ascertain that, I think, on two or three occasions, but before we could get the actual reports in there would be such a change, that by the time we got our reports from our different local officers, the changes would have been so great that we could not tell approximately how many there were. That information has to be obtained entirely from our local lodge officers.

Mr. Sheean: That is, your records do not show from day to day, or month to month, just what the members are doing?

Mr. Hawley: No, sir.

Mr. Sheean: They simply show whether they have kept up their dues?

Mr. Hawley: That is all.

Mr. Sheean: And one becoming a member of the Brotherhood and continuing to pay his dues retains membership in the organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: Are there some exceptions as to the lines of work that he can go into?

Mr. Hawley: No, sir.

Mr. Sheean: No matter what his vocation, after becoming a member he continues to be a member?

Mr. Hawley: He continues to be a member.

Mr. Sheean: Now, in this general investigation that you spoke of, did you get some approximate idea of about what the proportion of your total membership was of those who were actually in railroad service?

Mr. Hawley: I haven't that information, Mr. Sheean. I did not secure it. I haven't it in my office at all, unless that could be supplied by the president's department.

Mr. Sheean: You would not be able to venture an approximation of that?

Mr. Hawley: No, I would not attempt to.

Mr. Sheean: You would not?

Mr. Hawley: No, sir.

Mr. Sheean: In the figures you have given on one of these exhibits, Mr. Hawley, I took down from it and set opposite in the column on the first page here, the numbers of members in the different years. Beginning in 1904, you had a membership of 54,434 members, as I took it down.

Mr. Hawley: Yes, sir, that is at the end of 1904, December 31st, 1904.

Mr. Sheean: December 31st, 1904?

Mr. Hawley: Yes, sir.

Mr. Sheean: Then the membership during the year may have been spread over even a larger number than that?

Mr. Hawley: Yes. It would have been spread over a larger membership because there were a great many lapses, and the net increase only shows 853 for the entire year of 1905.

Mr. Sheean: Now, in that year, your losses here from both death and disability, were 557, as shown on page 1; that was out of a total membership of approximately 55,000, that is to say, 54,434.

Mr. Hawley: In 1905 I think it was 583, Mr. Sheean.

Mr. Sheean: I meant to say 1904.

Mr. Hawley: 1904? 557, yes, sir.

Mr. Sheean: 557 out of a total membership of 55,000, or in that year the death rate was 10 in every 1,000?

Mr. Hawley: Approximately that.

Mr. Sheean: Now, in 1913, your membership was 91,108?

Mr. Hawley: Yes, sir.

Mr. Sheean: And you had a total death rate in that year of 733?

Mr. Hawley: Yes, sir.

Mr. Sheean: That is a death rate of how many in every thousand?

Mr. Hawley: That decreased probably to between eight and nine. I haven't that figured out, but I think the percentage would drop off from one and a half to possibly little better than two.

Mr. Sheean: The total deaths were 733, and the total membership was 91,000, or a little less than eight in every thousand?

Mr. Hawley: Yes.

Mr. Sheean: So that there has been, through all of these years, a decreasing mortality rate?

Mr. Hawley: Yes, sir.

Mr. Sheean: Compared with your total membership?

Mr. Hawley: Yes, sir.

Mr. Sheean: And that continues through all of the period here beginning in 1904?

Mr. Hawley: Practically so.

Mr. Sheean: Practically so?

Mr. Hawley: Up and down in the different years.

Mr. Sheean: But, the death rate in the different years can, of course, be ascertained from the total membership that you have given here, and also the totals of death and disability?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, as to the deaths during those years, there is an even more marked improvement, is there not? Take it in 1904, on a total membership of 55,000 there were deaths of 453?

Mr. Hawley: Yes, sir.

Mr. Sheean: Or about one in how many numbers?

Mr. Hawley: That would be about one in every ten—or, I would say, ten to every thousand.

Mr. Sheean: Ten to every thousand?

Mr. Hawley: Yes.

Mr. Sheean: Now, in 1913 with a membership of 91,000 your total deaths were 589?

Mr. Hawley: Yes, sir. That would be a little better than six.

Mr. Sheean: Six?

Mr. Hawley: Yes, sir.

Mr. Sheean: So that the mortality rate decreased in your organization from 1904 to 1913, from ten in every thousand down to six in every thousand?

Mr. Hawley: Yes, sir.

Mr. Sheean: Has there been a very marked decrease from year to year in the death rate?

Mr. Hawley: Well, without figuring it out here, I think that the figures would show there has been a gradual decrease from 1904 down to 1913. Possibly it might have gone up in one year and would drop down in another. As you will see, we go from 1907, where we had 581 deaths, and drop down in 1908 to 436, and in 1909 down to 411, so there is a marked decrease in the deaths. Then we jump, in 1910, to 519.

Mr. Sheean: The membership, apparently, Mr. Hawley, in those two years, if you will just turn to that other slip, apparently the membership during 1909 dropped down considerably?

Mr. Hawley: It dropped down, yes.

Mr. Sheean: That 411 there is on a total membership of only 65,000?

Mr. Hawley: 65,000; yes, sir.

Mr. Sheean: While in the preceding year, showing 436, you had a total membership of 66,000?

Mr. Hawley: Yes, sir.

Mr. Sheean: While the death rate has thus declined, isn't there even a more marked showing in the decrease of railroad accidents? In 1904 you had a total number of railroad accidents of 236. That was spread over a membership of 54,434.

Mr. Hawley: Yes, sir.

Mr. Sheean: Or attributable to railroad accidents, about what, Mr. Hawley? You are quicker than I am on those.

Mr. Hawley: Well, about four to the thousand.

Mr. Sheean: Something over four?

Mr. Hawley: Something over four; yes, sir.

Mr. Sheean: In 1913, out of a total membership of 91,108, you had a death roll, due to railroad accidents, of 243?

Mr. Hawley: That would be a little less than three.

Mr. Sheean: Approximately about two and a half?

Mr. Hawley: Yes.

Mr. Sheean: Or 25 in every 10,000?

Mr. Hawley: Yes.

Mr. Sheean: About 43 in every 10,000 in 1909, and 25 in every 10,000 in 1904?

Mr. Hawley: Yes.

Mr. Sheean: These other causes that you give are simply at the time of the death, as I get it? You are not able to give at any time the proportion of membership—

Mr. Hawley: No, sir.

Mr. Sheean: That is engaged in other occupations than railroading?

Mr. Hawley: No, sir.

Mr. Sheean: From your general knowledge, Mr. Hawley, of the railroad operations—or do you have any touch with any of the other departments of the Brotherhood as to how many of the men are actually employed?

Mr. Hawley: No, I do not.

Mr. Sheean: Would you say that one-fourth of your membership is comprised of people who are not in railroad service?

Mr. Hawley: No, I wouldn't think it was anywhere near that.

Mr. Sheean: Not anywhere near that?

Mr. Hawley: No.

Mr. Sheean: Would you say it was a fifth, just in the most general way?

Mr. Hawley: Why, I don't imagine you would find—well, no, I don't think it would be one-fifth. I have never seen the figures, never have touched them at all, and it would be a very hard thing for me to even attempt to estimate the number out of railroad service.

Mr. Sheean: Well, one-sixth; would you say there was as many as that?

Mr. Hawley: That would be practically 16,000; I should think it would fall below that. If I was going to make a rough estimate, to give a rough judgment as to how many there were, I should say it might possibly be from 6,000 to 8,000.

Mr. Sheean: 6,000 to 8,000 out of the total membership?

Mr. Hawley: Yes, out of the membership of 91,000.

Mr. Sheean: Out of the membership of 91,000?

Mr. Hawley: Yes.

Mr. Sheean: You don't think it would run to anything like one-sixth?

Mr. Hawley: No, sir, I wouldn't think it would.

Mr. Sheean: Then, on that first page, Mr. Hawley, in the deaths from other causes, there are 51 who died outside of railroad service, and 243 in railroad service. If, in fact, the part of your membership not engaged in railroad service is only 6,000 or 8,000, or less than one-tenth of your membership, the death rate is higher in all of these other classes of service, scattered generally in all vocations, than it is in railroad service, is it not?

Mr. Hawley: Well, we took the year 1913 and showed the 51 deaths from other causes with a possible membership out of the railroad service of 7,000. If I remember the percentage, it figured to show about two and a half, and in the out-of-service it would show about seven, a little better than seven.

Mr. Sheean: That is, the death in outside-of-railroad service is much higher than it is in railroad service?

Mr. Hawley: Yes, according to this, judging from 7,000 as being out of service.

Mr. Sheean: Yes; well, a person taking his membership in the B. of L. F. & E., by continuing to pay the dues, may go into any kind of employment at all; there is no prohibition, so long as he pays his dues?

Mr. Hawley: No, sir.

Mr. Sheean: If and when his dues are paid and death results, you pay the claim?

Mr. Hawley: Yes, sir.

Mr. Sheean: And you have paid from causes other than railroad accidents here in the last year, 51 claims, as against 243, shown in column 2, for railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Sheean: About one-fifth of the death claims have been for other than railroad accidents?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, if this membership outside of railroad service is scattered through all of the various crafts and employments and professions, the death rate thus spread over the country generally is over two times as high as the death rate in the railroad service?

Mr. Hawley: But, Mr. Sheean, you could not say that the 51 deaths from other causes were men who were not in railroad service, because we have brakemen and switchmen, and things of that kind.

Mr. Sheean: I did not mean, Mr. Hawley—I want to be entirely fair on that—in other than the vocations of engineers and firemen?

Mr. Hawley: Yes, sir.

Mr. Sheean: So, if you spread that around in the walks of life generally, in all the walks of life other than railroad engineers and firemen, the death rate is two and one-half or three times as high in this general field as it is in the field limited to locomotive engineers and firemen?

Mr. Hawley: It would be indicated by these figures, yes, sir.

Mr. Sheean: Of course, Mr. Hawley, it is true that the recruiting in the ranks of engineers and firemen is from young men, selected men of a high physical type?

Mr. Hawley: Yes, sir.

Mr. Sheean: About between what ages, ordinarily?

Mr. Hawley: Why, I think our record shows that the average at the time of admission is between 22 and 23 years, in our organization.

Mr. Sheean: Into your organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: And they continue in that organization after they become engineers; they may be members of both brotherhoods?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, on page 2, Mr. Hawley, is the same result fairly deducible from the records kept by your organization, that the death rate is higher when spread over the walks of life generally, by comparison with the death rate limited to engineers and firemen, or limited to engineers, firemen and hostlers?

Mr. Hawley: It takes in all of those employed in the engine service.

Mr. Sheean: And then you have a total death rate for the entire period of 866, in others, which you say includes many vocations; includes practically all vocations, or may?

Mr. Hawley: Yes, sir.

Mr. Sheean: And you have there a total death rate of 866, which is approximately one-sixth of the total deaths?

Mr. Hawley: Yes, sir.

Mr. Sheean: By the way, some one hands me a note that the addition is in error, that that should be 966. Will you run it up and see if it is?

Mr. Carter: Where is that?

Mr. Sheean: On page 2, the total of the next to the last column.

Mr. Hawley: Yes, sir, that should read, if the other figures are correct, 966.

Mr. Sheean: In any event, then, the deaths in your organization where, at the time of death, the person was not engaged as an engineer, fireman or hostler, are more than one-sixth of the total deaths?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, you know that those who are in these other lines of employment are not as high in membership as one-sixth of your total organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: So that on the field in which they are engaged, the broad general field, excluding only engineers, firemen and hostlers, the death rate per 1,000 is very much higher in this general field than it is in the limited field of engineers, firemen and hostlers?

Mr. Hawley: The figures would indicate that; not figuring percentage or anything of that kind.

Mr. Sheean: I just wanted to get whether or not that is a fair deduction from the figures, Mr. Hawley.

Mr. Hawley: Yes, sir.

Mr. Sheean: And from your estimate of what proportion of total membership is comprised in those who are in other fields, it would seem that the death rate, in the broad, general field, excluding only engineers, firemen and hostlers, was two or three times as high as the death rate in the Brotherhood of Locomotive Firemen and Enginemen.

Mr. Hawley: If it would figure out that way, yes, sir.

Mr. Sheean: Well, then, Mr. Hawley, turning back to page 1, the second paragraph of the text there, and the latter part of the sentence, "It is believed that in no other occupation will the record show a hazard of employment so great," that sentence would not be in strict accord with this showing?

Mr. Hawley: I think it would be in strict accord if you take the members of our organization and then distribute the other various figures of all of those who died, it would seem to me that the hazard is about as high as in any other vocation.

Mr. Sheean: In any other single vocation?

Mr. Hawley: Any other single vocation, yes, sir.

Mr. Sheean: But it is not nearly so high as the hazard in the combination of all fields, with no limit on that?

Mr. Hawley: No, sir, it could hardly be that.

Mr. Sheean: What is it?

Mr. Hawley: It would hardly be that. While the figures would bear out, so far as our organization is concerned, that it is only a little less than fifty, fifty—our 47 per cent of the death claims paid being from railroad accidents, that would show that so far as our membership is concerned, it would run about fifty, fifty, or a little less, being down to the 47 per cent.

Mr. Sheean: Of course you would, in making a distribu-

tion as to what the hazard was, have to consider the total number that were in other vocations, and compare that with the total number employed as engineers and firemen?

Mr. Hawley: Yes.

Mr. Sheean: And the result of that is that 966 deaths have resulted, spread over these other vocations, of about one-tenth of your membership?

Mr. Hawley: Yes, sir.

Mr. Sheean: You may be right, Mr. Hawley, but I cannot quite follow the suggestion that if the hazard of engineers and firemen is less than the hazard of the combined vocations, how it is possible that the hazard to engineers and firemen would still be greater than in any one of the constituent units from which this higher average is obtained

Mr. Hawley: I haven't the figures on that, but I think, if you will look up the statistics that are prepared by people who go into that feature, that you will find that the hazard amongst locomotive engineers and firemen is greater than that of practically any other vocation. I haven't the figures on that, but I think you will find that. It would seem to me that, from the figures which we present here, showing that 47 per cent of the deaths of the membership of our organization come from railroad accidents, the hazard is only 3 per cent less in all other vocations, taking disease and everything else.

Mr. Sheean: Taking all the combined field, Mr. Hawley, that is covered by your membership and the result obtained from those figures, being that death has actually occurred in twice as many cases per 1,000 members as in the limited number of the field covered by locomotive firemen and engineers, how can it be possible that the combination of all those vocations is higher than the hazard of engineers, firemen and hostlers, and still not one of those crafts or vocations would be higher, if considered separately.

Mr. Hawley: Well, you are taking every other vocation there as against engineers and firemen?

Mr. Sheean: Yes.

Mr. Hawley: Naturally, the death rate would be higher amongst people in every vocation in life that it would be—at least it ought to be, and any figures which we show from our

records would indicate that there is only about three per cent difference.

Mr. Sheean: Well, have you considered the number of accidental injuries that occur in any of these limited—in any of the organizations where membership is limited to a particular craft?

Mr. Hawley: No, sir.

Mr. Sheean: How does it compare—do you know how it compares with any other in railroad service?

Mr. Hawley: I never have figured that out at all, never went into those figures.

Mr. Sheean: You don't know what the proportion of accidental injuries in train service, for instance is?

Mr. Hawley: No, sir.

Mr. Sheean: Well, then, this statement is not based upon a study of the returns of any particular vocational insurance?

Mr. Hawley: It is based upon the figures of our organization, pure and simple.

Mr. Sheean: Now, I am still a little in the dark, Mr. Hawley, as to how it can be that, taking this entire field of your organization and putting it into segments, so that nine-tenths of it is covered by locomotive engineers, firemen and hostlers, the smaller segment of one-tenth covering all occupations, that in that smaller segment the death rate is higher than it is in the limited segment of hostlers, engineers and firemen, and still reach the conclusion that the hazard of employment may be greater in this limited part?

Mr. Hawley: I think if you took the figures and segregated out each individual occupation of those 966, and then figured it out, that you would find that the hazard among the engineers and firemen was greater than in any one of those occupations. Possibly there might be a few exceptions. I would not say, because I have never figured it.

Mr. Sheean: That is, based upon the comparison of deaths resulting accidentally and deaths resulting from natural causes, your opinion, considered alone on that comparison, is that the hazard as to firemen would be greater, comparing the accidental injuries with the deaths from natural causes?

Mr. Hawley: Taking the membership of our organization as a whole.

Mr. Sheean: Well, then, what is meant—I guess, perhaps, I now understand, Mr. Hawley—the comparison which you are making on page 1 is the accidental deaths as compared with total deaths?

Mr. Hawley: Yes, sir. We show there that the deaths from railroad accidents are 40 per cent of the total number of deaths for which we pay claims.

Mr. Sheean: This comparison on page 1 is the proportion to total deaths that accidental deaths bear?

Mr. Hawley: It is the proportion of deaths from railroad accidents to all of the other deaths.

Mr. Sheean: To all of the other deaths?

Mr. Hawley: Yes.

Mr. Sheean: In that comparison of why it happens or the cause of death, you have simply made the comparison as determining the hazard, whereas, the comparison that I have been talking about is the combined hazard of death from natural causes and everything else pertaining to the life of the engineers and firemen, and when you compare all the causes of death, accidental and otherwise, in the firemen's occupation, it is found to be less than the liability to death in all other vocations?

Mr. Hawley: Three per cent less.

Mr. Sheean: What is it?

Mr. Hawley: Three per cent less.

Mr. Sheean: Now, I understood you to say that if you took the part of your organization which is not engaged in the vocation of engineers, firemen or hostlers, that the death rate in that part of your organization was two or three times higher than the death rate among locomotive engineers and firemen?

Mr. Hawley: Yes, sir.

Mr. Sheean: The figures show that?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, the reports are made, are they not, as to the proportion of accidental deaths in the various organizations, to the various insurance departments?

Mr. Hawley: Yes, sir.

Mr. Sheean: But you have not taken occasion at any time to ascertain what the proportion of accidental injuries bears to the total injuries in train service, for instance?

Mr. Hawley: No, sir.

Mr. Sheean: Would it surprise you at all to know that the percentage in train service was very much higher than it is here, from your general knowledge of railroading?

Mr. Hawley: You mean with the brakemen, amongst the brakemen?

Mr. Sheean: Yes.

Mr. Hawley: Well, you have two brakemen to every fireman on every train, and sometimes you have three brakemen, and you have a chance to kill three, whereas you only have a chance to kill one fireman.

Mr. Sheean: And from your knowledge as to the hazard of the employment in connection with the safety appliances and all these other things, what has your observation been as to the relative hazards of the employment outside of what you derive statistically?

Mr. Hawley: Well, I could possibly better answer that by saying that during the time I was in the government service I thought, if I ever returned to railroad service, that I would like to take a job as a brakeman.

Mr. Sheean: Then did you think that it was less or more hazardous?

Mr. Hawley: I thought it was less hazardous than that of fireman, and possibly you might say less work.

Mr. Sheean: Well, would you be surprised if it were shown by the reports as made by the insurance department of the trainmen to the State of Illinois that their proportion of claims from accidental causes was over 70 per cent of their total claims?

Mr. Hawley: I would not be surprised if they said that that was true. If they showed that in the report, I would take it that that was absolutely true.

Mr. Sheean: But you have made no investigation at all as to the proportion of accidents as compared to deaths from natural causes?

Mr. Hawley: No, sir.

Mr. Sheean: The note which you make on page 4, Mr. Hawley, as to the time when payments for total and permanent blindness—when a change was made as to what fell under your policy, if it be a policy?

Mr. Hawley: Yes, sir.

Mr. Sheean: At different times, would account for a larger showing as to disabilities, proportionately, in 1909, than there was before that time?

Mr. Hawley: From the loss of eyesight, yes, sir.

Mr. Sheean: And that would apply, of course, to all of the tables here, that there would be a slight increase after this latter period, because the basis of the allowance was changed at a certain date?

Mr. Hawley: As to the disability, yes, sir.

Mr. Sheean: Now, on page 4, as to disabilities, Mr. Hawley, does the table at the bottom of the page there show that the total disabilities through all this period of those who are neither engineers, firemen or hostlers is a larger proportion of the total disabilities than the proportion of those others to engineers, firemen and hostlers as represented in your organization?

Mr. Hawley: No, I do not believe it does.

Mr. Sheean: Well, what is about the proportion of the others during this time, would you say? You say you do not think it does?

Mr. Hawley: I do not think it does, no, sir.

Mr. Sheean: The total disabilities are, with the engineers 302, with the firemen 566 and with the hostlers 41. The disabilities of those in other lines of work were 315; about one-quarter of the disabilities paid were in some other line of work than the engineers, firemen and hostlers?

Mr. Hawley: Yes, sir.

Mr. Sheean: Well, was the proportion of membership engaged in other lines of work at any time as high as one-quarter?

Mr. Hawley: No, sir, I don't think so.

Mr. Sheean: I want to be perfectly clear as to why this amuses Mr. Carter.

Mr. Hawley: I did not know that he was being amused.

Mr. Sheean: Is there anything misleading about the effort to ascertain what proportion of the claims have been paid here as to those not covered by engineers, firemen and hostlers?

Mr. Hawley: So far as I am concerned, there is not a thing misleading in any way, and I do not think so far as Mr. Carter is concerned. I have simply testified to the actual facts as they appear.

Mr. Sheean: I mean by my questions. I did not intend as to you.

Mr. Hawley: I do not take any exceptions whatever to the questions you have asked, and am perfectly free to answer every question just as truthfully as I know how.

Mr. Sheean: I quite understand that, but these figures seem to indicate to me, Mr. Hawley, and if I make a wrong deduction I hope you will point it out as to just where it is wrong, that out of a total number of 1,224 disability claims paid, 315 of those were incurred while the men were engaged in some other kind of work than engineers, firemen and hostlers?

Mr. Hawley: Yes.

Mr. Sheean: About one-quarter of your total disability claims?

Mr. Hawley: Yes.

Mr. Sheean: Now, that was paid in an organization, of which the persons engaged in other employment—the proportion of those engaged in other employments, was very much less than one-quarter of the total membership, is it not?

Mr. Hawley: Yes, sir.

Mr. Sheean: So that in proportion to the membership in the organizations, disabilities were incurred in a greater proportion in the part not covered by engineers, firemen and hostlers than were incurred in the part in which engineers, firemen and hostlers were employed?

Mr. Hawley: Taking it on a percentage basis, yes.

Mr. Sheean: On a percentage basis?

Mr. Hawley: Yes.

Mr. Sheean: I don't care whether it be percentage, Mr. Hawley, if there is anything misleading about percentage.

Mr. Hawley: I am speaking about the percentages; you spoke about one-quarter.

Mr. Sheean: That is, the total disabilities paid during this period were inflicted upon people not in the class of engineers, firemen and hostlers, in a larger proportion per hundred or per thousand of persons thus engaged than were the disabilities inflicted on engineers, firemen and hostlers?

Mr. Hawley: As compared with the membership?

Mr. Sheean: As compared with the total number engaged in these twelve crafts.

Mr. Hawley: Yes.

Mr. Sheean: Then that is a legitimate inference from this table, is it?

Mr. Hawley: I would just judge that it was, yes, sir.

Mr. Sheean: Now, so, at page 7, Mr. Hawley, where you have a summary of the causes of amputation. At the bottom of column 1909 you show—well, that of course is very largely out of proportion to the other. I don't want to pick out that one particularly. Let us take for 1911. There are a total number of amputations of 44 there, and 11 of those were because of accidents received in something other than railroad service?

Mr. Hawley: Yes.

Mr. Sheean: Something other than railroad service?

Mr. Hawley: Something other than those enumerated in the causes above the miscellaneous there, and that shows that while he might have been an engineer or fireman at the time, yet the accident which caused amputation was not the direct result of a railroad accident.

Mr. Sheean: Of being an engineer or fireman?

Mr. Hawley: Unless, perhaps, the amputation might have been a result of a railroad accident that took place prior, a year possibly prior, which necessitated an amputation later, and which our records would not show the actual cause of, of the first injury which resulted in the amputation later. We have cases of that kind.

Mr. Sheean: First, Mr. Hawley, let me clear up something that I was not entirely clear about yesterday, as to whether, in that column under 1911, 44 total amputations—the 11 that are shown at the bottom is an effort, so far as your records enable you to, to segregate the amputations because of being an engineer and fireman?

Mr. Hawley: Yes.

Mr. Sheean: Or fireman?

Mr. Hawley: Yes.

Mr. Sheean: From the other ones. In other words, a person might be an engineer or fireman, that is, qualified to serve as such, and might actually be serving as such, but if his amputation was because of a street car accident on his way home, that amputation would be carried down in this last column?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, then, of the total number of amputations in 1911, about one-quarter were traceable to railroad causes?

Mr. Hawley: I think 75 per cent; three-quarters were traceable.

Mr. Sheean: I beg your pardon. One-quarter from causes other than railroading is what I meant to say.

Mr. Hawley: Yes, sir.

Mr. Sheean: And in that one-quarter, of course, that covers all persons besides engineers and firemen, any person who is a member of the organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: The effort there is to segregate purely railroad amputations from others?

Mr. Hawley: Yes.

Mr. Sheean: So that all—

Mr. Hawley: I think I am wrong, there, Mr. Sheean. I think it goes to show that they were engineers or firemen at the time, but the result of their amputation was not from being in railroad service; that is, employed just at the time of the accident, or as the result of the accident, on a railroad.

Mr. Sheean: Exactly. I am wrong, Mr. Hawley, for not seeing that on page 6 you correctly show that it is limited to amputations for engineers and firemen, and this was a summary of that other statement.

Mr. Hawley: Yes, sir.

Mr. Sheean: So that, of the total amputations during that time, about one-quarter in 1911 arose from accidents in other than railroad service?

Mr. Hawley: Unless there was possibly one that I reported a moment ago.

Mr. Sheean: You have kept no record here or have not shown in the tables, have you, of amputations other than engineers and firemen, or is this—

Mr. Hawley: I think on page 5 that is covered, Mr. Sheean.

Mr. Sheean: Oh, yes, on page 5. Well, let us take 1911 in that case, then. There were total amputations there of 6 engineers, 38 firemen, and 10 suffered by others? That is, something over one-quarter was suffered by people engaged in some other kind of work than as locomotive engineers or firemen?

Mr. Hawley: Yes, sir.

Mr. Sheean: And I assume there that during that year the proportion of your total membership in other vocations than engineers and firemen was not anything like one-quarter?

Mr. Hawley: I think the proportion of those engaged in other occupations would be about the same, possibly, from year to year.

Mr. Sheean: So that, considered on the number of amputations per thousand persons employed, or per thousand persons covered by your policy, there was a greater proportion of amputations in proportion to the total number in occupations other than engineers and firemen in that year?

Mr. Hawley: Yes, sir.

Mr. Sheean: Well, 1913, of course, shows an unusually large number of amputations suffered by others. There are seven suffered by engineers; twenty-three suffered by firemen, and twenty-one suffered by others in that year. Of course, that would show a very, very much larger proportion of amputations per thousand engaged in other vocations than it shows per thousand engaged as engineers or firemen?

Mr. Hawley: Yes, sir.

Mr. Sheean: These same comparisons down to and including the year 1909, were submitted by you to the Board of Arbitration in the Western Concerted Movement in 1910, that is substantially the same comparisons; perhaps not set up in the same way, but the information as to your total membership and total disabilities and so on.

Mr. Hawley: I think I testified at that time; I don't remember just at present. I don't think I prepared any printed statistics, if I remember rightly, at that time.

Mr. Sheean: And in these that you have submitted here, Mr. Hawley, there is not any effort to deal with the different territories, the East as distinguished from the West?

Mr. Hawley: No, sir.

Mr. Sheean: Or the South from the North?

Mr. Hawley: No, sir.

Mr. Sheean: No one part of the country from any other particular part?

Mr. Hawley: No, sir.

Mr. Sheean: These classifications of railroad accidents as

put here, cover anything in which the person is injured while in his line of work?

Mr. Hawley: Yes, sir.

Mr. Sheean: Not merely the collisions and certain things that are specified?

Mr. Hawley: No.

Mr. Sheean: But wherever the person is hurt or killed while on duty?

Mr. Hawley: Yes, sir.

Mr. Sheean: It is included as a railroad accident?

Mr. Hawley: Yes, sir, it is included as a railroad accident.

Mr. Sheean: You spoke of there being a certain saving to railroad companies, not merely in life and limb, but in actual money, from the installation of automatic couplers, automatic air brakes, and certain other things. From your observation and knowledge of railroading, is there any such saving in any of the laws limiting the length of trains?

Mr. Hawley: Well, I never went into the feature of limiting the length of trains.

Mr. Sheean: Or limiting the number of cars that are to be hauled in trains?

Mr. Hawley: I never went into that at all.

Mr. Sheean: Do you know whether or not the organizations are now presenting in various legislatures, laws to limit the length of trains?

Mr. Hawley: I haven't any knowledge of it whatever.

Mr. Sheean: None on that at all?

Mr. Hawley: No, sir.

Mr. Sheean: But you cannot see any connection between any saving to the company in having the size of the trains so limited that they cannot utilize their tractive power to its capacity, in hauling a train, you do not see any saving in that, do you?

Mr. Hawley: I don't understand that.

Mr. Sheean: You were questioned here this morning by Mr. Carter, as to the possible saving in money as the result of certain laws that have been enacted here, not merely promoting safety, but actual saving of money for the companies. In any law which makes it impossible for the railroad to haul beyond a certain number of cars in a train, no matter what may be the

grade of the railroad, or what may be the tractive effort of the engine that hauls it, you do not see any possible saving in money to the railroad company from laws which prohibit trains beyond a certain length, do you?

Mr. Hawley: I would not care to go into the discussion of that subject at all, Mr. Sheean.

Mr. Sheean: This improved condition resulting from the installation of various safety devices, some under particular laws, and others that you enumerated by voluntary action of the railroads, does find a general reflection in the decreasing death rate and the decreasing injuries in your organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: Not only improved down to the year 1910, from the time you have been in connection with the business, but during the last three years it has shown further improvement?

Mr. Hawley: Yes, sir.

Mr. Sheean: And is constantly improving in that direction?

Mr. Hawley: Yes, sir.

Mr. Sheean: That is all.

RE-DIRECT EXAMINATION.

Mr. Carter: Mr. Hawley, will you please turn to page 4, the last table. I note that you show the employment at the time of disability, engineers 302, firemen 566, hostlers 41, others 315. With your knowledge of the character of disability claims paid by this Brotherhood, do you think that any considerable number of that 315 could have remained in railroad service? For instance, suppose a man becomes disabled from Bright's disease of the kidneys, do you think that the railroad companies would let him work as an engineer or fireman up to the time we allow him his beneficiary claim?

Mr. Hawley: No, sir.

Mr. Carter: Then that 315 includes every claim paid for every disease which has disqualified a man from serving as engineer or fireman, has it not?

Mr. Hawley: Yes, sir.

Mr. Sheean: Pardon me just a minute until I catch up. Is that the third column, "Others"?

Mr. Carter: "Others."

Mr. Hawley: Yes, sir.

Mr. Carter: Page 4, the last table on page 4, he shows that 315 others than engineers, firemen and hostlers, were paid disability claims. With the present stringent physical examinations conducted by railroads, Mr. Hawley, do you believe that any railroad would retain in its service as an engineer or fireman, a man who was totally disabled because of Bright's disease of the kidneys?

Mr. Hawley: No, sir.

Mr. Carter: Then, if a considerable number of that 315 are from Bright's disease, and they served many years as engineers or firemen, and because of the Bright's disease they must leave their engines, and ten days or a year later, die, you would class that among "Others," would you not?

Mr. Hawley: Yes, sir.

Mr. Carter: How about every other disability we pay?

Mr. Hawley: The same thing applies.

Mr. Carter: Then, is it not possible that practically all of that 315 should be properly charged to engineers and firemen, because that was the last service that they were able to perform?

Mr. Hawley: If that was the last service.

Mr. Carter: I say, if it was.

Mr. Hawley: If it was, yes.

Mr. Sheean: Do you mean if it was interrupted—

Mr. Carter: Read the question.

(Question repeated by the reporter.)

Mr. Sheean: What is the answer?

(Questions and answers repeated by the reporter as recorded above.)

Mr. Sheean: Do you mean that if it was that they would be under the "Engineers and Firemen," or under the column of "Others"?

Mr. Carter: I want to bring out, Mr. Chairman and gentlemen, that Mr. Hawley, in segregating occupations, showed in the column of "Others," many, many firemen and engineers who have been worn out and scrapped by railroads; men who can no longer follow their occupation as engineers and firemen, thrown from the service because of their disability, and left for us to take care of. That is what I wanted to show by that column. (Addressing the witness.) Is it not true, Mr. Hawley, that all

of these men, members of this Brotherhood, who have worn themselves out trying to fire or run these engines, have acquired diseases, perhaps vocational or otherwise, and have ceased to be engineers, or firemen, or hostlers, and then the disease develops, and when they become totally disabled, because of this disease, the claim is then paid?

Mr. Hawley: Yes, sir.

Mr. Carter: Do you not include every one of this character of men in the 315?

Mr. Hawley: Yes, sir.

Mr. Carter: Does that not apply, on page 2, to the number of deaths, where it shows "Others" 966 deaths—page 2, fifth column, where you have 866 deaths of "Others," or it should be 966—presuming that a man acquired some affliction, some disease while working as an engineer, fireman or hostler, and became worthless to the railroad company as such, and left the service of his own accord, or was dismissed because of his physical disability, and this disability resulted in death ten days or five years later, would there not be the same principle involved?

Mr. Hawley: Yes, sir.

Mr. Carter: Therefore, in these 966 "Others," that largely represents the wreckage of the railroad vocation, does it not?

Mr. Hawley: It represents a great deal of it.

Mr. Carter: I do not, Mr. Chairman and gentlemen, think there is use of prolonging the testimony along this line; but Mr. Hawley has testified to his figures without explanation, and it has been my purpose to show that the conclusions reached by the counsel for the railroads were grossly erroneous. I do not think it is necessary to take up any more time on that. (Addressing the witness.) Now, we will turn to page 5. I note reference has been made there—Now, is it not a fact, Mr. Hawley, that in addition to what we have shown here, a large proportion of the benevolent claims that we pay, are paid to men out of railroad service?

Mr. Hawley: Yes, sir.

Mr. Carter: Practically every one of them?

Mr. Hawley: Yes, sir.

Mr. Carter: Practically all of them, however, were disabled from diseases or other causes, many of which arose while they were in railroad service?

Mr. Hawley: Yes, sir.

Mr. Carter: Turning to page 7, counsel for the railroads brought out the fact that in 1911 there were eleven amputations not accounted for by railroad accidents. That is, of 44, 33 were from railroad accidents, and 11 were not. Do you know how many men are involved in this computation, engineers and firemen?

Mr. Hawley: No, sir.

Mr. Carter: Say approximately 70,000 or 65,000 engineers and firemen, or 60,000, would it be along about that?

Mr. Hawley: According to my answer to Mr. Sheean, I indicated that there was only about 7,000 of the members who were not engaged in the service.

Mr. Carter: Well, I am asking you, Mr. Hawley, for the year 1911, which counsel for the railroads emphasized under cross examination, anywhere from 60,000 to 70,000 or 75,000 would be a rough estimate of the number involved.

Mr. Hawley: A rough estimate; yes, sir.

Mr. Carter: We do not know how many engineers and firemen were working, but we will guess at it. Do you know of sixty or seventy thousand men in any walk of life that might not suffer 11 amputations through that year, aside from the railroad business?

Mr. Hawley: No, sir.

Mr. Carter: Do you think that this is unusual, to find that of those sixty or seventy thousand men, eleven of them suffered amputations other than from railroad causes?

Mr. Hawley: I would not think it unusual.

Mr. Carter: Let us take the next conclusion, then, four times as many suffered amputation because they were engineers and firemen, as would have occurred had they not been engineers or firemen; is that not true?

Mr. Hawley: Yes, sir.

Mr. Carter: That is all.

RE-CROSS EXAMINATION.

Mr. Sheean: Mr. Hawley, I wanted to get clear, at page 4, where you say "Others," includes those who were engaged in various occupations. You endeavor, in that head, to give their last occupation, at the time that the disability was paid?

Mr. Hawley: Yes, sir.

Mr. Sheean: So that if the last employment of any of these men was as engineer or fireman or hostler, that person would be taken into account in either columns 1, 2 or 3?

Mr. Hawley: No, sir.

Mr. Sheean: What is it?

Mr. Hawley: No, sir. Their last employment might have been—in paying a disability claim—three or four years prior to that, and they may have done a little job of some other kind, or they might be in a position where they had been relieved of railroad service because they were no longer able to perform the railroad service, and, having to live in some way, they may have taken up a little vocation, so all we are trying to show is that the last actual employment which they performed was not included as an engineer or fireman, although they might have given up the service two months before that.

Mr. Sheean: But, Mr. Hawley—I think we misunderstand each other—I say if the very last work that a man did was as an engineer, and that he did not take up any odd job of any kind, that man would be put in the column of engineers, would he not?

Mr. Hawley: Yes, sir.

Mr. Sheean: And in the column of "Others," you have put down only those whose last employment was something other than engineer, fireman or hostler?

Mr. Hawley: Yes, sir.

Mr. Sheean: If, in fact, a person breaking down with Bright's disease, as Mr. Carter suggests, while he was a fireman or engineer, and if he did no other work, took up no other vocation, that man would be shown in columns 1, 2 or 3?

Mr. Hawley: Yes, sir.

Mr. Sheean: But only in the case where, after leaving the railroad service, he took up some other line of work, would he be shown in column 3?

Mr. Hawley: Yes, sir.

Mr. Sheean: That is the way I understood it.

RE-DIRECT EXAMINATION.

Mr. Carter: When I was so unfortunate as to be a witness, I found that the gentle and suave manner of the counsel for the

railroads got me into the habit of answering yes to everything that he said, and I fear that you have fallen into the same habit. It is a fact, is it not, Mr. Hawley, that most of these men to whom these disability claims are paid, are in no service at all?

Mr. Hawley: Yes, sir; that is true.

Mr. Carter: Is it a fact that many of them never have been in any other service?

Mr. Hawley: I could not say as to that.

Mr. Carter: I will say—I am not a witness, but I know it to be a fact; many men contract consumption and years after it is developed they finally are paid the consumption claim, and they are not in any service—I am not a witness, but I will testify to the fact. (Addressing the witness.) Is it not a fact that if a man's eyesight became defective, which disqualified him from the severe conditions confronting him as an engineer or fireman —is it not a fact that he might work in a cigar store, or in a grocery, or do something of that kind, at any recompense, because he could not work on the railroad?

Mr. Hawley: Yes, sir.

Mr. Carter: Would it not be directly attributable to the blindness or other affliction acquired previous to his leaving the service, on account of injury or disability?

Mr. Hawley: Yes, sir.

Mr. Carter: Presuming a man is examined for promotion to the position of engineer, or at any other time, and he is found to be color blind, he is dismissed from the service, ordinarily, is he not?

Mr. Hawley: Yes, sir.

Mr. Carter: Would that disqualify him from service in some other line?

Mr. Hawley: No, sir.

Mr. Carter: Then, these statistics of disability for which he was paid, would be based largely upon the disease which he acquired, which caused his dismissal or retirement from the service?

Mr. Hawley: Yes, sir, but the records would not show that.

Mr. Carter: The record would not show that?

Mr. Hawley: No, sir.

Mr. Carter: When the disability is paid, there is no at-

tempt to trace back and find out what that man has done since he left the railroad service?

Mr. Hawley: No, sir.

Mr. Carter: I will ask you again, could any of these 315 to whom disability claims have been paid, have been in the service, if the disability was from disease?

Mr. Hawley: No, sir.

Mr. Carter: Can you imagine twenty or thirty, or whatever the proportion is, of that 315, to whom disability claims were paid on account of consumption of the lungs in its last stages, as still being on an engine?

Mr. Hawley: No, sir.

Mr. Carter: How about Bright's disease?

Mr. Hawley: He would not be.

Mr. Carter: Do you believe that the railroads would retain in their service an engineer or fireman who had progressed in paralysis to the extent that, under our laws, we would pay him the amount of his beneficial claim?

Mr. Hawley: No, sir.

Mr. Carter: Can you conceive of any way that a man afflicted in any manner, to whom we pay the full amount of the disability claim, could be retained as an engineer or fireman?

Mr. Hawley: No, sir.

The Chairman: I would like to ask a question. Is it necessary, in order to receive this benefit, to establish by testimony that the disability was incurred while in the service of the road?

Mr. Hawley: No, sir.

The Chairman: Or while in the service as a fireman or engineer?

Mr. Hawley: No, sir. We make an effort to ascertain the last employment of a person to whom we pay a death or disability claim, without attempting to go into any disability claims as to what was the direct cause of the disability, or anything of that kind. If he says he was engaged as a grocery clerk, we pay the claim for Bright's disease, say, and we show him as a grocery clerk at the time we pay it; and he would not be included in these "Others" regardless of whether riding a bad engine caused Bright's disease, or anything of that kind.

The Chairman: Well, is it a fact that, many of these men,

after they incur disability in the service, go out of the service of the railroads and into some other kind of employment?

Mr. Hawley: Yes, sir.

The Chairman: And do those belong to the class of people whom you would put in this column that we have heard so much talk about?

Mr. Hawley: Yes, sir.

The Chairman: That is all.

Mr. Carter: You were asked a question concerning the qualification of applicants for membership in the Brotherhood of Locomotive Firemen and Enginemen. Is it not a fact that a man must be employed, actually employed as a locomotive engineman when he is admitted?

Mr. Hawley: Yes, I testified to that.

Mr. Carter: You were asked concerning the number of firemen, and I believe you replied that it varied, did you not?

Mr. Hawley: Yes, sir.

Mr. Carter: If the railroads, because of the introduction of large locomotives, wherein one locomotive takes the place of two, or because of depression in business, it can now be shown that perhaps 15,000 firemen are out of employment, would not that vary the number of firemen we might have in our organization?

Mr. Hawley: Yes, sir.

Mr. Carter: Is it not the fact that this same cause results in men being engineers and firemen alternately through a long period of years?

Mr. Hawley: Yes, sir.

Mr. Carter: Therefore, would it not be impossible for us to estimate accurately how many firemen we have and how many engineers we have?

Mr. Hawley: I don't think we could estimate it accurately.

Mr. Carter: Do you remember, Mr. Hawley, a statement prepared a few years ago showing the number of engineers, firemen and hostlers, and others, prepared and presented to a convention, when I was General Secretary and Treasurer?

Mr. Hawley: I think I recall that to mind.

Mr. Carter: You haven't access to that now?

Mr. Hawley: Not at present.

Mr. Carter: Do you remember that there were about 18,000 engineers?

Mr. Hawley: I could not say as to the figures.

Mr. Carter: And about 55,000 firemen, and so forth?

Mr. Hawley: No.

Mr. Carter: All right.

The Chairman: Have you a table which shows the percentage of the men who have left the service, that is, whether they left it on account of disability incurred while in the service—have you anything of that kind?

Mr. Hawley: No, sir.

Mr. Park: Do you show how many lapses there are in your membership annually?

Mr. Hawley: Why, I could tell you the lapses from membership for the past year, 1914.

Mr. Park: What were they?

Mr. Hawley: 4,306.

Mr. Park: You don't know whether that would be about the annual number?

Mr. Hawley: No. Well, I say the lapses, not the actual lapses, but that was the actual figure in our membership during the last year. I think our actual lapses, if I remember rightly, were somewhere in the neighborhood of 9,000.

Mr. Park: That is all.

RE-DIRECT EXAMINATION.

Mr. Carter: Mr. Hawley, with regard to lapses of our membership, don't you find that usually we have 7,000 to 9,000 members lapsing every year?

Mr. Hawley: Yes, sir.

Mr. Carter: You attribute that, to a small extent, do you not, to men who withdraw from this organization and join the Brotherhood of Locomotive Engineers?

Mr. Hawley: Yes, sir.

Mr. Carter: Is it not a fact that a vast majority are men who have either left the railroad service of their own accord, or have been dismissed from railroad service?

Mr. Hawley: I don't know what is the cause, but we naturally feel that a man is dismissed from the railroad service, or leaves the railroad service, and takes up some other vocation.

Mr. Carter: If it is shown by forms furnished by the railroads themselves, Form 18, that on the Great Northern Railroad more firemen have been employed in the last four years than they have had in service at any one time, would it not indicate the fact that the vast majority of firemen know when they have got enough, and quit?

Mr. Hawley: Yes, sir.

Mr. Carter: Does that not affect our membership?

Mr. Hawley: Yes, sir.

Mr. Carter: We have a marked increase, however, when men are being employed, is that not true?

Mr. Hawley: Yes, sir.

Mr. Carter: Dropping out of the service as railroad men, they usually, or in many instances, the vast majority of instances, sever their connection with the organization, do they not?

Mr. Hawley: Yes, sir.

Mr. Carter: Many of them have to because of inability to carry their insurance?

Mr. Hawley: Yes, sir.

Mr. Carter: The insurance is obligatory?

Mr. Hawley: Yes.

Mr. Carter: The man cannot retain his membership without keeping up his insurance?

Mr. Hawley: Not if he has once had insurance.

Mr. Carter: Is it the attitude of this Brotherhood that any man who works as an engineer or fireman must carry insurance?

Mr. Hawley: Must carry insurance; yes, sir.

Mr. Carter: Was it not a fact that many, many years ago, before insurance was compulsory, that we had help asked continuously of us to help bury some fireman who was killed in a railroad wreck?

Mr. Hawley: Yes, sir.

Mr. Carter: And to help support his family?

Mr. Hawley: Yes.

Mr. Carter: And the result is that it is the attitude of this Brotherhood that any man who is a member of this organization must protect his family, is not that true?

Mr. Hawley: Yes, sir.

Mr. Carter: I think you said in reply to one of the hyp-

notic questions that firemen in railway service vary less than ten per cent. You didn't mean that, did you?

Mr. Hawley: I don't understand that.

Mr. Carter: He asked you if a certain variance in railroad service was not less than ten per cent, or I mean the men in railroad service was not less than ten per cent. He asked you the question; I haven't it here, but as I remember it, counsel asked you the question, if the number of men not in railroad service was not less than ten per cent, and, being under a spell, you said yes.

Mr. Hawley: I qualified that by telling him that I believed those out of service were about 7,000, between 7,000 and 8,000, and if we had 91,000 members, naturally the percentage would be about ten per cent.

Mr. Carter: Suppose we show this afternoon, if we get to it, that only on a portion of the railroads involved in this arbitration practically 7,000 men have been laid off in the last year; that would amount to ten per cent in itself, would it not?

Mr. Hawley: Yes, sir.

Mr. Carter: Mr. Hawley, what is the average limit of membership of those to whom we pay claims?

Mr. Hawley: Between six and seven years

Mr. Carter: You don't know whether that is an extremely low average of men working at an occupation before they are totally disabled or killed, do you?

Mr. Hawley: No, sir.

Mr. Carter: But our experience is that our members do not work more than how much, did you say?

Mr. Hawley: Between six and seven years.

Mr. Carter: Between six and seven years until they are totally disabled or killed?

Mr. Hawley: The records for the past five years, since they have been kept, show that the average period of membership of those for whom we paid death or disability claims, is between six and seven years.

Mr. Carter: Have you a record of the average age of those to whom we pay claims?

Mr. Hawley: I have it at the office.

Mr. Carter: Do you remember about what it is?

Mr. Hawley: It runs from—

Mr. Carter: About 32?

Mr. Hawley: I think between 31 and 32; or 32 and 33.

Mr. Carter: Do you know of any other occupation as exemplified by the experience of an organization or otherwise, where the average age of deaths are as young as they are in this brotherhood?

Mr. Hawley: I don't know of any other organization, no, sir.

Mr. Carter: That is all.

RE-CROSS EXAMINATION.

Mr. Sheean: That is, Mr. Hawley, if I understand the latter part of your testimony, that the deaths and disabilities in 1913 were what? About a little less than eight in every thousand of your membership?

Mr. Hawley: In 1913?

Mr. Sheean: Yes.

Mr. Hawley: Yes, sir, a little better than eight per cent.

Mr. Sheean: And of the eight-tenths of one per cent of the membership in which claims are paid, the average length of time of that eight-tenths of one per cent have been members of the organization six or seven years?

Mr. Hawley: Yes, sir.

Mr. Sheean: And it is simply in that eight-tenths of one per cent of your total membership, in which you are making this comparison of the length of time that the eight-tenths of one per cent who do suffer misfortune, live without suffering such misfortune?

Mr. Hawley: Yes, sir, so far as our membership is concerned.

Mr. Sheean: What is it?

Mr. Hawley: So far as our membership is concerned.

Mr. Sheean: Yes, but the six or seven years' time that Mr. Carter refers to as being the average length of a fireman, is the average length of the eight-tenths of one per cent of your membership who do suffer death or disability?

Mr. Hawley: Yes, sir.

Mr. Sheean: And for the 99.2 per cent. who suffer neither death or disability, no estimate is made as to what their average

life is because it has not been affected in any way so far as your observation is concerned?

Mr. Hawley: No, sir.

Mr. Sheean: Notwithstanding the increased size of engines to which Mr. Carter adverted here, as I got the figures on this exhibit that you introduced here this morning, your membership has grown—well, in 1904 I think you said you had 54,434 members at the end of the year?

Mr. Hawley: Yes.

Mr. Sheean: In 1905 it had grown to 55,287?

Mr. Hawley: Yes, sir.

Mr. Sheean: A growth of about 1,000 practically in that year.

In 1906 it had grown to 58,849.

In 1907 to 62,916.

In 1908 to 66,409.

In 1909 to 65,315. A slight falling off there.

In 1910 it had grown to 73,649.

In 1911 to 79,942.

In 1912 to 85,292.

In 1913 to 91,108.

Those figures are correct, are they?

Mr. Hawley: Yes, sir.

Mr. Sheean: Now, there was extended on the exhibit, to which I had access for a moment, to the right of that another column of figures that I did not quite understand, Mr. Hawley, beginning with 1905.

Mr. Hawley: That shows the actual increase or decrease for the year; and the next column showed the percentage of increase or decrease.

Mr. Sheean: Let me see now; to go back to 1910, from 1910 to 1911 you increased your membership 6,293?

Mr. Hawley: Yes, sir.

Mr. Sheean: And from 1912 over 1911, 5,350?

Mr. Hawley: Yes, sir.

Mr. Sheean: And 1913 over 1912, 5,816?

Mr. Hawley: Yes, sir.

Mr. Sheean: Increase in membership?

Mr. Hawley: Yes, sir.

Mr. Sheean: That has been the net increase in member-

ship, notwithstanding the increased size of engines, the dropping out of service of men, and so forth, that has been the net increase in membership through these years?

Mr. Hawley: The net increase in membership, yes, sir.

Mr. Sheean: This insurance, Mr. Hawley, is purely mutual, is it?

Mr. Hawley: It is what we might term a fraternal beneficial organization.

Mr. Sheean: A fraternal beneficial organization?

Mr. Hawley: Yes, sir.

Mr. Sheean: And the amount of the assessments is determined by the experience of the organization?

Mr. Hawley: No, the amount of the assessments is determined by the convention.

Mr. Sheean: By the convention?

Mr. Hawley: Yes, sir. They are set arbitrarily and they are the only ones that have authority to change them.

Mr. Sheean: And you make your reports to the Insurance Department of Illinois?

Mr. Hawley: Yes, sir.

Mr. Sheean: And all those who remain members of the organization pay these assessments for the benefits that they get from the insurance?

Mr. Hawley: Yes, sir.

Mr. Sheean: If, in fact, the hazard as to engineers and firemen who remain members of the organization is a greater hazard than those who, having become members, continue out in various vocations, such as bookkeepers or any other line of work, then the 6,000 or 7,000 or 8,000 who are out in other lines of work, on this fraternal proposition, are paying their dues in an extra hazardous occupation?

Mr. Hawley: They are paying into an organization that has an extra hazardous occupation.

Mr. Sheean: But, notwithstanding that fact, the dues as to all who remain in membership are just the same?

Mr. Hawley: Yes, sir.

Mr. Sheean: And if, in fact, a considerable number continue in the organiation and pay the dues in this fraternal organization notwithstanding they are in other lines of work, they apparently consider the returns which your insurance depart-

ment can give to them, or the protection which is given, good protection for the amount of the assessments?

Mr. Hawley: In answer to that, I think you will find that all of them would tell you that we have the cheapest insurance of any fraternal organization, taking into consideration the benefits that they may derive through the organization.

Mr. Sheean: So that a person becoming a member and not liking the work of fireman, and going into the work of a bookkeeper, say in a bank, he gets insurance thus spread on a purely fraternal basis over the whole field, and cheaper insurance than he could get in any other purely fraternal or mutual organization?

Mr. Hawley: In comparison with the benefits which he receives, yes, sir.

Mr. Sheean: That is all.

RE-DIRECT EXAMINATION.

Mr. Carter: Mr. Hawley, is it not a fact that we have as many lapses in six or seven years as we have members at any one time?

Mr. Hawley: We have estimated, and it has been borne out practically by figures, that speaking in general terms, our membership practically changes every seven years.

Mr. Carter: Do you know of any other organization that is so favored in insurance matters as that?

Mr. Hawley: No, sir.

Mr. Carter: Do not lapses greatly reduce the expense of insurance?

Mr. Hawley: Yes, sir.

Mr. Carter: If we had 70,000 in a given year, and it should be shown that during the period of seven years, as many as 70,000 had withdrawn or lapsed, would not we have all their money that they had paid in?

Mr. Hawley: Yes, sir.

Mr. Carter: Would they have anything to show for it?

Mr. Hawley: Nothing, only their receipts for their money.

Mr. Carter: Don't you think that the cheapness of our insurance is because of the enormous number of lapses?

Mr. Hawley: Yes, sir.

Mr. Carter: The older men that remain in service are

promoted or dismissed; the younger men who enter the service quit, or are dismissed, and they all leave their money behind, do they not, that they have put in?

Mr. Hawley: Yes, sir.

Mr. Carter: Is that not the reason that our insurance is the cheapest insurance on earth?

Mr. Hawley: That very largely contributes to it.

Mr. Carter: Who is responsible for these lapses? Do you think we are? Do we compel them to lapse their insurance?

Mr. Hawley: No, sir.

Mr. Carter: Do you believe that it is the—well, I will use the word vicissitudes of engineers' and firemen's service that causes those men to leave railroad service? Do you believe the game is too hard for them?

Mr. Hawley: Yes, sir.

Mr. Carter: Then, indirectly, the difficulty of firing a locomotive or running one, decreases the cost of our insurance; is that not true?

Mr. Hawley: Yes, sir.

Mr. Carter: But what about the man who stays? He is the hero, is he not?

Mr. Hawley: Yes, sir.

Mr. Carter: He is the man that ought to have the iron cross, and he gets it. You are positive of the fact that from the time the man joins the Brotherhood to the time you pay his insurance, it will average from six to seven years?

Mr. Hawley: Yes, sir.

Mr. Carter: That is all.

Mr. Sheean: That is all.

(Witness excused.)

The Chairman: Call your next witness.

Mr. Stone: I will ask Dr. Harris to take the stand.

DR. HENRY J. HARRIS was called as a witness and, having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Stone: Mr. Chairman and gentlemen, Dr. Harris is introduced as a witness for the purpose of presenting such information as is available concerning the occupation hazard of

locomotive engineers and firemen. Dr. Harris spent three years in German universities studying economics and statistics, and in 1901 was given the degree of Doctor of Philosophy by the University of Pennsylvania. As a result of a special civil service examination, he was appointed to the staff of the United States Department of Labor, by Carroll D. Wright, and was later placed in charge of certain special investigations.

He prepared, and the United States Government published, studies on sickness and accident rates of coal miners; also special studies on accident and sickness insurance of workmen in Germany; accident and sickness insurance of workmen in Austria; and also a study on industrial accidents and loss of earning power in Germany, and a number of other investigations on the same subject.

He is a fellow of the American Statistical Association, a member of the Workmen's Insurance Committee of the American Association for Labor Legislation; and I believe I am entirely safe in saying he is the highest living authority in America on subjects of this kind, if not in the world. There may perhaps be others as good; I do not believe there are any any better. If there are we did not know where to get them.

Exhibit 43. We will offer Exhibit 43, showing the Occupation Hazard of Locomotive Engineers. Dr. Harris is employed as an expert, and will also introduce an exhibit showing the occupation hazard of locomotive firemen; is that correct, doctor?

Dr. Harris: Yes, sir.

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 43, January 13, 1915.")

Mr. Stone: This exhibit deals with engineers.

The Chairman: You mean Exhibit number 43?

Mr. Stone: Number 43, yes, sir. Dr. Harris, I wish you would explain the object of this exhibit in your own way.

Dr. Harris: The purpose of this exhibit is to bring out such information as we could find, especially from sources not connected with wage problems, or with the Engineers' organization directly: what data they did contain on the subject of occupational hazard.

Of course, that brings with it a lot of difficulties, because the statistics in some cases do not flatly and squarely come to

the point at issue, and a certain amount of latitude must be permitted in order to show the general tendencies that this data which has been prepared for other purposes, contains.

First of all, I do not know whether sufficient emphasis has been placed on the fact that the locomotive engineer, from the insurance point of view, is a select risk. Usually he has been a fireman in advance of his service as engineer, and he is usually selected after a pretty thorough physical examination; and furthermore, after he has put in about five or six years as a fireman. He has had his first examination as a fireman and he has had his second physical examination when he is promoted as an engineer. So, you get a pretty careful selection, and secure what you might call a decidedly superstandard of physique.

Then, in addition, the mental qualifications of the locomotive engineer are somewhat, I will say decidedly, above the average. That is attested by the constant examination as to divisional management, tests as to his familiarity with his new machinery, and so on.

In order to get some general impression as to the extent of the occupation, I have taken the Census of 1910. For the first time in the history of the Census they have separated the occupation of locomotive engineer and the occupation of locomotive fireman from the other occupations connected with railroad service. Heretofore, taking the 1900 Census, for instance, it contains only information for railroad employes as a group. We now have it for locomotive engineers, locomotive firemen, and some of the other groups.

The main point of the table on page 2 of the exhibit, however, is the age grouping. The Census showed that only a small number of the engineers naturally are under 20, and that about 69 per cent of them are from 21 to 44 years of age. Roughly speaking, 70 per cent of engineers are under 45. That is a decidedly favorable age selection to secure a low mortality rate.

The number of engineers is given here as 96,000 odd. I ought to state, perhaps, that when the Census enumerator visited the home of the person he was questioning, he asked the occupation, and usually a certain number would answer "Railroad engineer," and in making up the tables those persons were included as locomotive engineers; but obviously, a certain number

of persons employed on small engines around yards and so on would report themselves as that, so that the number is excessive. There is no doubt about that.

The mortality rate ought also to be favorably affected by the fact that two-thirds of the engineers are native born, of native parents. They are the second generation of Americans. The number of foreign born is about one-tenth of the total group. In presenting the material, I have presented it by taking first the general mortality rate, and then taking up what I could find of the mortality rate due to accidents, and due to disease. The general mortality rate that is given here is taken largely from "Life Insurance Practice."

The most important information we have on the subject is that contained in an investigation published in the year 1913, called the "Medico-Actuarial Mortality Investigation." It covered the experience of something over thirty odd American life insurance companies, though one or two Canadian companies were also included at their own request. This information relates, for all practical purposes, to American practice, and covers the period ranging, as far as railroad occupations are concerned, from the period 1890 to 1910. It took them three years to work up the information.

The report was published by the Actuarial Society of America, which is a body of high scientific standing, and so recognized throughout the world, by actuaries.

On page 3 I have included all of the information relating to railroad occupations, that that report gave. For the sake of completeness I have put in all of them.

The first column only relates to locomotive engineers; and the last column, or rather, the end of the table, the first row of figures, is the significant figure that I would like to call attention to. The standard mortality of all these American life insurance companies was taken as 100, and the death rate of engineers, compared with all of the deaths occurring in these life insurance companies, rated as 160 per cent. The engineers' death rate, therefore, is 60 per cent above the average of all the lives insured by these thirty-odd companies.

The committee themselves stated it was their opinion that any excess of the mortality ratio over 100 per cent indicates the mortality due to the particular occupation, so that, taken as a

general tendency, the mortality of the locomotive engineer rates about 60 per cent above the standard.

I ought to say that certain railroad occupations are not included here, partly because the number of persons insured was not large enough to compute a rate, and some of them, like the railroad brakeman, frankly have a higher rate than the engineer and are so recognized by the life insurance companies; they simply do not take them. No claim is made that the locomotive engineer's mortality rate is the highest of any, either, but it is approximately 60 per cent above the average.

For the sake of completeness, I have added an earlier mortality study that practically these same companies made ten years earlier. It was called the Specialized Mortality Investigation. In order to reduce the expense, and because of certain theories that some of the actuaries had, they reduced the scope of this investigation so that it is not as complete as that of the 1913 report. But this earlier one showed that the engineers' mortality was 27 per cent above the average for all of their insured lives.

That makes two general studies that I have quoted on the subject.

The New York Life Insurance Company, in order to test its experience, published in the Actuarial Journal a special study of their own occupational mortality in certain hazardous occupations, and in the New York Life Insurance Company the rate for engineers was 45 per cent above the standard of all their lives insured.

Now, obviously, when a life insurance company makes a contract with a man for life insurance, it takes his occupation at the time when he was insured. Now, of course, there are many of these leave the locomotive engineers to later change in occupation, and it ought to be stated clearly that the figures are defective to that extent; that a certain number at the time of their death, perhaps, were master workmen, perhaps had other positions, or had gone into other occupations. But, in order to show how much that could influence the final result, I have quoted their table on page 5, showing what a high proportion of those engineers die in the early years of their insurance. So it is a fair presumption that the greater part of this 60 per cent above

the normal were still in the occupation of engineer at the time of their death.

These are general statistical estimates of the engineers' hazard.

I have added at the bottom of page 5 just one illustration of the general practice of life insurance companies in admitting engineers to their companies.

The usual practice for a hazardous occupation is to require the applicant to take out an endowment policy, or to add a specified sum to the rates, or to move up his age, so that the company protects itself in taking a higher risk than—by charging for a higher risk than would normally be the case.

In the case of the New York Life Insurance Company, the locomotive engineers have eight years added to their age, and in the second place must take out no cheaper policy than a twenty year endowment policy. As I recall the rates, an ordinary old line policy, the rate would be about half the charge for an endowment policy, somewhat less than half.

The other occupations that the company lists in the same category with engineers are dynamo tenders and telegraph linemen (who climb poles) and quarrymen engaged in blasting. And those who were given a lower rate are iron workers, cartridge workers and city fire department employes.

The skilled workman in a powder factory has ten years added to his age, and is required to take an endowment, and the locomotive engineer has only eight years added to his age. He has that much of a reduction under a skilled workman in a powder factory.

Now, in order to show how the life insurance practice rates the engineer as compared with other occupations, I have given in the table on page 6 every occupation with a rate of 25 per cent above the normal that the report included, except that I left out those connected with the liquor traffic, as that is not of any interest in the present connection.

Now, the locomotive engineer, according to this, is rated at 160, and those above the engineer in this table are regarded by the life insurance company as having a higher risk, as being less profitable for their business than the engineers.

Now, they include miners and workers in stone and earth. After them come the locomotive firemen. The third group are

the structural iron workers, and the fourth group are the locomotive engineers. I have made those groups.

Now, the miners and workers in stone and clay, and the structural iron workers, are not selected in any way whatever. Anybody who applies for a job, if he looks good, is practically taken on by these occupations. You get, therefore, no selection such as the stringent railroad physical examination makes among the men. And, I was about to say that the wage grouping is less favorable, but I neglected to bring the census report with me. But, as a matter of general information, I would make that statement.

That practically sums up the information regarding the general mortality rates and the estimate of life insurance companies of the occupation of locomotive engineer.

The Chairman: We will adjourn until 2:30.

(Whereupon at 12:30 o'clock P. M. a recess was taken until 2:30 o'clock P. M.)

After Recess.

DR. HENRY J. HARRIS was recalled for further examination, and, having been previously sworn, testified as follows:

Mr. Stone: Dr. Harris, before taking up the rest of your tables, I would like to ask you two or three more questions, if it will not interfere with the continuity of thought. I notice on page 2 the report of the census bureau, the number of engineers is shown as 96,000. How did this number come to be overstated? There aren't that many engineers in the United States.

Dr. Harris: The difficulty arose from the fact that all occupational statistics are confronted with the difficulty of shading off of one occupation to another, and a census enumerator going to a residence of a railroad employe, say, would ask him where he was employed, and he would say in the railroad. He would ask him what his occupation was and he would say he was an engineer. Of course, that would be turned in as a locomotive engineer when it came to the final tabulation of the information. That is a perfectly natural inaccuracy, if you choose to use such a strong term. When you come to count large masses of people, occupational statistics I presume is one of the most difficult fields that we have to work in, when it comes to stating labor

statistics. The illustration this morning that the Brotherhood of Firemen and Enginemen never was able to tell exactly what its membership was engaged in, is reflected in even a greater degree when you come to take the statistics of the whole population. It is obvious, of course, that the 96,000 is over-stated.

Mr. Stone: I notice, for example, you show negro locomotive engineers, 355.

Dr. Harris: I have no doubt that there are no negro engineers. Perhaps on some little industrial line, some logging road, there may be a negro who runs a diminutive engine. If so, he would report himself as a locomotive engineer. Perhaps some negro may be working on a hoisting engine and he might be reported as a locomotive engineer.

Mr. Stone: Or perhaps running a small locomotive for some contractor?

Dr. Harris: Undoubtedly.

Mr. Stone: The reason why I note that particularly is that with one single exception I do not know of a negro engineer in any main line service, and, by the way, I might add that he says he is not a negro, but that he is a Spaniard.

Dr. Harris: Yes.

Mr. Stone: On page 3 is the death rate of 160 a fair estimate of the extra hazard of the engineer's occupation—could that be taken as a fair estimate?

Dr. Harris: Yes, I should say it could. The only thing that surprises me is that it is only 60 per cent. Just speaking a priori, one would expect it to be much higher than that, but I feel that must be due to the long selection that has taken place before the man reaches an engineer; and then you have this psychological factor in itself, that the engineer who takes out life insurance in addition to the Brotherhood insurance, is an unusually prudent man, and these engineers that are taken up by prudent life insurance companies represent a distinctly high type, or high class of selection, and so you have got the very cream of the risk, and still you have 60 per cent above their normal of all their insured lives.

Mr. Stone: On page 4, those three studies there mentioned, show a difference; one shows 160, one 127, and one 145 above normal or expected. Now, why is this variation?

Dr. Harris: That I should say was a perfectly natural

result. The 160 is the largest and most complete investigation that has yet been made of the experience of life insurance companies in the United States. It covers twenty years; it is the most recent that we have; and it includes a larger number of life insurance companies than any other.

The 127 was the result of the study of the earlier experience of American life insurance companies, but includes a much smaller number of risks, and excludes carefully any policy that the companies had imposed an extra charge on because of occupation. That was one of the points that was insisted on in making that investigation, and it affected the result. I gave it because it shows in comparison with other railway occupations, a fair statement of what they found at that time, in 1903.

The last one, 145, is the experience of just one company, the New York Life Company, which, if not the largest, is certainly one of the largest of the three big life insurance companies in the United States, and one that is carefully managed. Mr. Arthur Hunter has been president of the Actuarial Society of America, and watches his death rates very carefully, so it is an interesting exhibition of what an early study of over ten years ago found, of what one life insurance company, carefully managed, found; and you might say what the total experience of the leading American life companies results in, which brought out the 160 rate.

Mr. Stone: It is true, is it not, that a great many of these old line companies do not insure locomotive engineers at all?

Dr. Harris: Yes, that is true.

Mr. Stone: There are only a few of the larger companies that do insure them, and they charge a higher premium?

Dr. Harris: Yes, that is true.

Mr. Stone: On this page 6 here, these mortality rates, in comparison with other occupations, these are all American experiences, are they not?

Dr. Harris: Yes. One or two of the smaller companies, I have forgotten at the present moment, exactly how many there were, are included from Canada, but this is the result of experience in the United States.

Mr. Stone: Is there anything of value in the European experience?

Dr. Harris: I should say not. We have a certain amount

of information and I have consulted some of it, such as the Registrar General's report for Great Britain, but I should say that conditions in railroading in the United States were so totally different from European countries, that it was a waste of time to include such matter in a discussion of wages, say, or of occupation hazards in the United States.

Mr. Stone: I think that is all I care to ask now. I do not care to interrupt you, but I just wanted to settle in my own mind these tables, so as to be sure I understood them correctly. Now, you may take up the explanation of your exhibit again.

Dr. Harris: The first part, as you see, is a general study of mortality among occupations. Now, this mortality may be due to accident, or to disease. In order to show the general hazard of trainmen, I have given the Interstate Commerce Commission figures on page 7, showing the deaths per 1,000 train men, for the whole country.

Following that, I have given the death rate for locomotive engineers and firemen as found by the United States Employers' Liability Commission, and that covers the three years, 1908 to 1910.

The engineers' and firemen's death rate from accident is practically the same, just a little short of four per thousand, as the Federal Liability Commission found.

I want to state, however, that these figures were contributed by the railroads themselves to the Commission, and practically only the large and well organized eastern companies were able to supply this information. This is largely eastern experience and probably represents the most favorably situated engineers in the United States. But, still, in spite of that fact, the rate is a little bit short of 4 per thousand.

The medico-actuarial examination that I have referred to several times, in its preliminary discussion of the tables, takes up the question of the deaths from accidents, and they found for all of them what they call a normal rate, and they quote the variations from this normal rate.

According to this report, the engineers have a death rate from accident, which is eight times normal; locomotive firemen have nine. Those two occupations rank highest of all those studied by this Medico-Actuarial Examination.

After the engineers come such occupations as underground

mining (mostly mineral mines); anthracite coal miners; structural iron workers, and a number of other occupations. Those that I have mentioned there are distinctly hazardous occupations, well known as such. But, according to the experience of these life companies, the locomotive engineers have a higher rate than any of these.

The next table that I give shows the experience of the Prudential Company. The Prudential Life Insurance Company conducts one of the so-called industrial departments, and Mr. Hoffman, their statistician, watches the returns pretty closely, and just in the latter part of December he published a pamphlet showing what proportions of their deaths were due to accidents.

For all of their insured lives in the industrial department, 10 per cent of the deaths were caused by accidents. Among the engineers it was 26 per cent. It is, therefore, approximately two and a half times the rate for all occupations insured in the industrial department.

In the next table on page 9, I have reproduced an exhibit of the railroads which was presented at the time of the Concerted Wage Movement in 1912. This was presented by the railroads with the claim that it showed a favorable condition. You will notice that the rates, say, since 1907, have been somewhat lower than they were before. You find, for instance, in 1900, a rate of 3.12; in 1910 you find a rate of 2.90. The variation, I should say, did show a certain amount of improvement, but it is not very greatly in excess of what they have had at earlier dates, and the rate is still a distinctly high one as compared with other occupations.

Another method of finding the estimate which experts place on the hazard of the locomotive engineers' occupation is that made by the accident insurance companies. Instead of taking a large number of companies presenting their facts, I have just simply taken the standard table prepared by the National Association of Accident Underwriters, which they prepared as a guide for all the accident insurance companies in the United States. This International security rating has nine classes in it. The highest class, class nine, is practically non-insurable. It includes aviators, enlisted men in time of war, and so on.

The eighth class is called "perilous." It includes occupations such as jockeys and bicycle racers, etc., and has a few industrial occupations in it, such as rolling mill employes, where a man is undoubtedly exposed to an extreme risk.

Following that comes the seventh class, the "Extra-hazardous" class, so-called, and after the extra-hazardous class comes the engineers' class.

This engineers' class is a special class inserted between the sixth and seventh, between the extra-hazardous and hazardous, and is applicable only to engineers on Northern Roads. They decline to give a quotation for engineers on other roads.

Some of the rates quoted in this international table are for a locomotive engineer for the usual $1,000 policy, $10, while for disability a locomotive engineer is charged $31.50. Bridge builders and structural iron workers, $34, and locomotive firemen, $35.

Mr. Stone: Might I interrupt you there to ask a question?

Dr. Harris: Surely.

Mr. Stone: And that rate of $31.50 for the locomotive engineer provides for a policy of $1,000 for death—that means only accidental death?

Dr. Harris: Yes.

Mr. Stone: If he dies a natural death he would receive nothing?

Dr. Harris: No, this is just accidental death. That, in general, is the fatal occupation hazard of the engineer. It is a matter of some difficulty to find the hazard as regards disability, but I have given all the information I could find on the subject, and that includes the reports of the Interstate Commerce Commission and the reports of the Federal Employers' Liability Commission, and the reports of the State of Illinois.

It is rather difficult to make any general statement regarding this liability to physical injury; but for train men as a whole, the Interstate Commerce Commission's reports show a distinct increase in the last three years, the last report available being 1912-1913.

The Federal Employers' Liability Commission's report shows that the engineer's rate is 4.28.

I have also included the Illinois Bureau of Labor statistics, in order to find, if possible, what kind of injuries the locomotive

engineer sustained, in order to bring out how it affected his earning capacity. For both the engineer and fireman these injuries affect practically all parts of the body. There is no means of protecting him in any way; just simply his whole body is exposed.

Following this I have inserted a table prepared by the mutual insurance organization of the Brotherhood of Locomotive Engineers. The portion of interest is, first of all, the last column, giving the rates—the latter part of the last column on page 13. This rate, since 1904, practically, has been twelve and a fraction, except for the year 1907, when there was a heavier traffic on the railroads, it went up about one-tenth, roughly speaking.

The deaths per annum of railroad engineers, as shown by this exhibit, are also somewhat of interest. The last year, 1913, shows a falling off, as compared with the preceding five years, say, but, if you will look, say at 1896 or 1897, there were similar low rates at that time. As a general rule, since 1903, the rate has averaged say from 3 to 4. In 1903 it was 5. In the last few years it has been 3.

On page 14 I have taken a statement prepared by the insurance organization of the Brotherhood of Locomotive Engineers, and it gives there some rates for classes of diseases, the classes of diseases being arranged on the international classification of diseases, used by the Federal Census office. The rates, I should say, do not possess minute scientific accuracy; but the last column, showing the distribution of diseases causing death, is rather of interest. For instance, nervous diseases, the whole group, cause the death of practically ten per cent of all engineers. Near the end of the last column is the showing that for the period 1890 to 1913 practically one-third of the engineers' deaths were caused by occupational accidents—accidents while on duty. That is, of course, a high rate. The Prudential's Industrial Department, quoted previously, shows 26 per cent of its deaths due to accidents, but that, of course, for the Prudential, is only the last six years.

The last point I wanted to bring out in regard to locomotive engineers was the length of time that a locomotive engineer can expect to earn wages. The first table given was prepared by the railroads for the previous Engineers' Arbitration and

shows the number of engineers of each age from 21 to 80 years of age. This is a railroad exhibit, frankly prepared to show that the condition of engineers was favorable. I have summarized that by age groups in the next table, and in the table on page 16 the number of engineers of the various years of service is also given. It is not necessary to go over those figures in detail. The net result of the tabulation is that the railroads in the eastern part of the United States find that the men in their service averaged 12.4 years. If you get a mass of employes, here this was 31,000 engineers, with a constant stream coming in and going out, that length of time that they served is a fair indication of their trade life and according to this the locomotive engineer can expect to work say twelve and one-half years.

The Brotherhood of Locomotive Enginees' insurance organization found that the average age of death of their members was after eleven years service.

The living men therefore averaged 12½ years' service; and the men who died in the Brotherhood's membership showed a trade life of slightly over 11 years. Less than 15 years, therefore, is the time that a locomotive engineer can expect to retain his earning capacity.

The Eastern roads showed quite a number of men, say over 60, in that table on page 15, but I imagine that the number in the East is much larger than elsewhere, and that most of these men over 60 had very light duties, and most probably reduced pay, as a consequence.

On page 16 I have tried to give a short summary for the benefit of the Board, of what these long and rather dreary statistical tables indicate. In the first place, the occupation of a locomotive engineer is undoubtedly a hazardous one, and it is fair to say that it is extra-hazardous, and I insert that word extra-hazardous, in view of the careful selection of the risks that are made before the man reaches the position of engineer. The working life of a locomotive engineer I have put down as from 11 to 12 years. Certainly the average locomotive engineer must expect that his working life is not more than 15 years.

The two special studies of mortality that the Actuarial Society of America have conducted, show that the engineer ranks close to the locomotive fireman, in having a higher death rate

than the express messenger, mail clerk, passenger trainman, passenger conductor, and track supervisor.

As compared with other occupations, the locomotive engineers have a mortality which is in the same general class for coal miners, structural iron workers and so on.

The fatal accidents of the membership of the Brotherhood of Locomotive Engineers come pretty nearly being 35 per cent of their total deaths.

The bodily injuries which locomotive engineers sustain are especially those applied to the legs, though other parts of the body are also affected. Loss and impairment of eyesight show up strongly in the causes of disability of engineers.

Mr. Stone: Then I would understand, Dr. Harris, that your conclusions are, that it is a fact that 11 or 12 years is the working life of a man?

Dr. Harris: I should say that covering a whole industry like that, that 11 or 12 years would be a fair estimate of the group as a whole, the average for the whole group.

Mr. Stone: That represents his whole stock in trade, does it not; that is all he has to sell?

Dr. Harris: Entirely.

Mr. Stone: Then, in those few short years he must not only live and pay house rent and raise his family, send his children to school and educate them, but he must also lay up a competence for old age, if he is one of the fortunate ones that do not get killed on duty?

Dr. Harris: Yes.

Mr. Stone: So in your opinion those two things should be taken into consideration in fixing the wage that the man should receive for his labor?

Dr. Harris: I should say so.

Mr. Burgess: Doctor, does that working life take into consideration the accidents, as well as the deaths?

Dr. Harris: Yes.

Mr. Stone: I think that is all, doctor.

CROSS-EXAMINATION.

Mr. Sheean: Doctor, can you tell us about how much higher the rate is for a brakeman than for the locomotive engineers and firemen? I think you said you excluded brakemen.

Dr. Harris: Yes.

Mr. Sheean: Or, on the average, on this 160 and 190 basis, how much higher is the rate for the brakeman?

Dr. Harris: I have stated in the text, for instance, "Certain occupations, such as brakemen, are not included in this report, because they undoubtedly have a higher occupation risk, and are accepted in such small numbers that there were not enough cases to form the basis for the computation of a rate."

They were undoubtedly excluded because the number was too small to form the basis of computating a rate. There is no question that the brakeman has a higher accident rate than the engineer. He is not the selected man that the engineer is.

Mr. Sheean: I was wondering whether you could tell us how much higher the rate was, whether you have made any computation on that?

Dr. Harris: No, the information is not available.

Mr. Sheean: In the classes 7, 8 and 9 to which you refer—

Dr. Harris: Which page is that?

Mr. Sheean: Page 9.

Dr. Harris: Yes.

Mr. Sheean: You refer there to the classification made by the Accident Underwriters?

Dr. Harris: Yes.

Mr. Sheean: Have you the details so that you could give us these classes, 5, 6, 7, 8 and 9, as to just who was above and who just below in the occupations that were considered more or less hazardous than that of locomotive engineers?

Dr. Harris: No, I haven't that here. It would be a perfectly simple matter to get one of those standard accident ratings. I regret to say I haven't it here.

Mr. Sheean: I thought possibly you had one with you.

Dr. Harris: No, I don't happen to have one with me, I regret to say.

Mr. Sheean: Now, the last conclusion in your tables, about the length of service—

Dr. Harris: Which page is that, please?

Mr. Sheean: I think it is on pages 15 and 16. Yes, 16 and 15.

Dr. Harris: Yes.

Mr. Sheean: The length of trade life of locomotive engi-

neers. Assuming, Doctor, that on the date on which these tables were compiled here—

Dr. Harris: Yes.

Mr. Sheean (continuing): That all of the locomotive engineers and firemen covered by the table, were wiped out of existence by a sudden calamity, what would be the average life of those engaged in that occupation?

Dr. Harris: Well, I couldn't state that exactly. The way to get at it, I should say, would be to find the average age of admission to the Engineers' Brotherhood, and add this period of service to that average age.

Mr. Sheean: Yes, but in reaching the conclusion that the average trade life is twelve years, have you not proceeded upon the assumption that the computation ends on that date?

Dr. Harris: I should say that a stream of men coming into an occupation and going out by death, say, would show at any given time after an industry had been in operation for a long period of time, such as railroading has, would show about what the average working life was.

Mr. Sheean: But, Doctor, do you in this table make any computation of the number of engineers who are living either at the beginning or at the end, or do you simply take the number of deaths which have occurred in this period?

Dr. Harris: For the engineers' data I have taken just the number of deaths.

Mr. Sheean: Just the number of deaths?

Dr. Harris: Yes, and that showed eleven. For the living persons, the railroads' computation shows twelve and a half, roughly.

Mr. Sheean: Well, now, limiting it then to the computations of the employes; of those who died in this period of time, the average length of life of those who died was eleven years?

Dr. Harris: Yes.

Mr. Sheean: So that, in that computation, in reaching that conclusion of the average trade life, you have simply assumed that the engineers all began and all ended on the period of time computed there?

Dr. Harris: I see no objection when you are making an average of that sort, if you have got a long series of men coming into an occupation, if you have got your stream that

way, I see no statistical objection to taking the average of that. I should say that is a fair estimate of the length of time, provided you have got, not a new occupation, but an occupation which has been going on for a long time.

Mr. Sheean: Well, in the organization here from which these tables were compiled, does that cover the entire corporate life of the organization?

Dr. Harris: No.

Mr. Sheean: It covers what period?

Dr. Harris: 1890 to 1913.

Mr. Sheean: 1890 to 1913?

Dr. Harris: Yes.

Mr. Sheean: A period of thirteen years?

Dr. Harris: Twenty-three.

Mr. Sheean: Twenty-three years. And what is the total corporate life of the insurance department?

Dr. Harris: Do you remember?

Mr. Stone: 1867, and it is still alive yet.

Mr. Sheean: You made no comparison of membership at any particular time, the total number that were involved in this death rate?

Dr. Harris: Well, no, I guess I didn't understand your question properly at the start. It states that from—in the brief here it states that from January 1st, 1897, until December 31st, 1911, there were 8,000 deaths, and of those who died it was eleven years practically during that period, 1897 to 1911.

Mr. Sheean: That is, of those who died during that period there was an average life of eleven years?

Dr. Harris: Yes.

Mr. Sheean: Now, in order to ascertain, Doctor, what the average occupational life of any person is, you would have to take, I assume, both the beginning and ending of the occupational life of all the people who were involved?

Dr. Harris: Well, I don't see how it could be feasible to do that. For an insurance purpose, if you take a fairly large selection and get your average length of life for that selection, the result is legitimate in assuming that that—other things being equal, of course—does represent the trade life.

Mr. Sheean: That also is assuming, is it not, Doctor, that there is flowing in at one end the same number, practically,

that flow out at the other, so as to keep the number over whom it is spread, constant?

Dr. Harris: A fairly even stream.

Mr. Sheean: A fairly even stream. And do you know whether or not the membership of this organization over which these statistics are spread has kept even in that way or not?

Dr. Harris: I have got that right here on page 13. That shows from 1897 to 1911.

Mr. Sheean: In 1913 as I—

Dr. Harris: The figures—trade life figures that you are interested in end with 1911 and begin with 1897. During that time the membership has increased threefold, and the increase of membership would be younger men, better risks, who would if anything prolong the trade life—average.

Mr. Sheean: And in order to determine, Doctor, what the average trade life was, limiting it simply to the trade, would you not have to have the same factors both at the beginning and the ending of it? That is, the actual beginning and actual ending of the trade life, spread over the same number of persons?

Dr. Harris: To be absolutely and entirely accurate, perhaps it would give a better rate than this average that is derived from the deaths that we have given. You noticed, did you not, in my general discussion, I assumed that fifteen—that we ought to make a reasonable allowance for all these figures. I lay no special stress on the eleven, and I have mentioned fifteen as a round figure that we ought to consider.

Mr. Sheean: Let me see if this is not sound. If, you take in 1911—that is the period you say over which you have spread this average, 1907 to 1911.

Dr. Harris: 1897 to 1911.

Mr. Sheean: 1897 to 1911?

Dr. Harris: Yes.

Mr. Sheean: Now, if in 1911, the 63,647 engineers covered by this organization suddenly went out of life in some widespread calamity, all wiped out of existence, would not the average length of occupation then be twelve years, or the eleven years shown in these tables?

Dr. Harris: Well, I should say it would be higher, because you have got a lot of new entrants.

Mr. Sheean: No, but I am assuming now, Doctor, that as the conclusion was as you found it in 1897 and it totally ended by an earthquake in 1911, the 63,647 members all pass out of life at that time, would not the figures which you have introduced here show then that even in that situation the average length of life—

Dr. Harris: Of trade life.

Mr. Sheean: Of trade life would be the eleven years shown here.

Dr. Harris: Probably higher, but approximately, yes.

Mr. Sheean: Well, would it not be the identical figures which have been carried out here as the trade life of the engineers?

Dr. Harris: Simply because, since 1897, a large number of very young persons have come in, and they would give a better class, and would, I should say, change the figures to some extent.

Mr. Sheean: Well, I am wondering, Doctor, whether or not the average length of life, of 11 years, is not arrived at in that way; that is, you take all of the deaths which have occurred between these two periods of 1897 and 1911. Now, if you take—

Dr. Harris: 8,000 deaths, say, approximately.

Mr. Sheean: Now, then, instead of 8,000 deaths, you have in 1911 all the other deaths: say the organization is wiped out of existence at that time, you have just this same result, have you not, that these men have had only an occupational life of 11 years?

Dr. Harris: Approximately, yes.

Mr. Sheean: So that, isn't there underlying this deduction of only 11 years occupational life the assumption that the entire trade and every one in it goes out of existence at the time when you say the occupational life ends?

Dr. Harris: Say that again, will you, please?

Mr. Sheean: In reaching the conclusion that the 11 years, as shown by this table, prepared by the mutual insurance organization of the Brotherhood of Locomotive Engineers, that the length of life of the engineer is but 11 years—is there not assumed that the organization ends by death at the end of the period for which the computation is made?

Dr. Harris: Why, I don't quite see that it makes a sub-

stantial difference. If you take 8,000 deaths and find the length of service that those 8,000 men have worked, get your average for those 8,000, that is, I should say, a fair statement of how long that group of men, in that period, have been able to stay in the occupation.

Mr. Sheean: But you say that that conclusion thus arrived at would be just the same conclusion that you would reach if, in 1911, all the members of the organization passed out of life?

Dr. Harris: I should say it might even make it shorter, because of the increase in railroading in that period.

Mr. Sheean: No, I am talking now simply of the table at page 13. If the table ended with the end of the year 1911, and all of the 63,647 engineers there shown passed out of life in that year, the organization then, because of the death of every member, would end, and then the average life of the men during this period would have been 11 years.

Dr. Harris: All right; yes.

Mr. Sheean: That would have been the result.

Dr. Harris: Yes.

Mr. Sheean: So that whether your way of figuring it be right or wrong, you have figured it on just the same basis that you would figure it if all of the membership of the organization passed out of life at that time?

Dr. Harris: I would not attempt to make a computation on those lines, having some definite figures, of 8,000 men who have died, I would take that always, but I see no objection to your method, if you so desire it.

Mr. Sheean: All I am seeking to develop is whether or not there would be any difference in your way of figuring or in the use of the figures between the situation where there were only the 8,000 deaths during that period, or where the total membership actually died in the last year.

Dr. Harris: I don't suppose there would be any difference.

Mr. Sheean: No difference at all. So that, whether there were 70,000 left living in 1911, or 63,000, or none left living, your conclusion—I mean the deductions as to the average life of the engineer—would be the same?

Dr. Harris: Practically.

Mr. Sheean: That is also true, is it, Doctor, of the tables which you show on page 15?

Dr. Harris: Well, this table represents a selected number of 31,000 men that were employed on these Eastern roads at the earlier time.

Mr. Sheean: But those men were the men then living on the date this exhibit was presented?

Dr. Harris: Yes.

Mr. Sheean: If, on the day on which the exhibit was presented in 1912, all of the 31,000 men shown in that exhibit died, on that date, then their average length of railroad life would have been 12 years?

Dr. Harris: Yes.

Mr. Sheean: What their expectancy of life was beyond the 12 years there shown, you don't know?

Dr. Harris: No.

Mr. Sheean: I mean, there is nothing in the statistics that would show it?

Dr. Harris: No.

Mr. Sheean: So that the first table in which you reach the deduction of 11 years life—I won't say is based upon the assumption, but is carried out in the same way as if all the engineers there shown passed out of existence at the end of the period covered by the tables?

Dr. Harris. All right, I will admit that. I had not thought of looking at it that way.

Mr. Sheean: And the second table, the deduction based upon the 31,000 employes of these Eastern railroads, shows that those 31,000 men, up to the date of the exhibit, had averaged 12 years in service and were still living.

Dr. Harris: Yes.

Mr. Sheean: So that there is nothing in the table from which you can make any deduction of what the expectancy of life was beyond the 12 years?

Dr. Harris: Well, of course, I cannot—I don't know whether I understand what you mean by expectancy of life. These 31,000 men had averaged, at that time, 12½ years, roughly, of trade life.

Mr. Sheean: Yes.

Dr. Harris: For all practical purposes, that represents a cross-section of the industry at the time, and it would mean, say on that day, or the day following, the regular number had

dropped out and the regular number had entered. That is constant stream that I have referred to.

Mr. Sheean: If, on the day on which this exhibit was presented, all of these 31,000 men passed out of existence, they would have served 12 years in railroad service.

Dr. Harris: Yes.

Mr. Sheean: On the date on which it was presented, 31,000 locomotive engineers had already served 12 years in service, and what their future expectancy was, you cannot deduce from the table, except that some of them had been in railroad service at that time as many as—

Dr. Harris: Some of them had been 40 and 50 years in the service, yes.

Mr. Sheean: From 40 to 50 years in service at that time?

Dr. Harris: Yes; but of course what you have done is to take a cross-section of this stream of men, and as each entrant comes in, as each new man comes on, it is a perfectly simple actuarial computation to say, if he is 30 years of age and, say, is engaged in agricultural pursuits, that 30 years of life is before him—an insurance company would assume that he had that much, on the average.

Mr. Sheean: In this table it is shown of the 31,000 then in life—

Dr. Harris: Then in life—

Mr. Sheean: —that they had served an average of 12 years in the railroad service.

Dr. Harris: Yes.

Mr. Sheean: In order to make our average occupational or trade life 12 years, it would be necessary to assume that some sudden cataclysm took the 31,000 out of existence on that date, in order to make their life just the 12 years.

Dr. Harris: That is all right, yes; but, of course, you keep in mind the fact that a certain number came in the day before, and a certain number dropped out the day following. It is a question of computation of the average of a constant stream of living men.

Mr. Sheean: Now, the 11 years' life shown in the other table, was an insured 11-year period out of the possible 14 years covered by insurance, wasn't it—you took from 1897 to 1914 as the period of insurance.

Dr. Harris: Oh, no, that was the deaths that had occurred between those two times. A lot of them may have been insured from the very beginning of the organization.

Mr. Sheean: Yes, but what I mean, Doctor, and perhaps my question was a little bit misleading, is this: You took the period from 1897 to 1911?

Dr. Harris. Yes.

Mr. Sheean: A total period of fourteen years?

Dr. Harris. Yes.

Mr. Sheean: If there was the constant flowing in, and constant flowing out at both ends that you have spoken of, you would have just this fourteen year period there?

Dr. Harris. Yes.

Mr. Sheean: Constant at both ends, and if one came in at the beginning and was one of this constant stream going through, he would have a possible period of fourteen years?

Dr. Harris. Yes.

Mr. Sheean: And in that possible period of fourteen years, the average life was eleven?

Dr. Harris: That is not a fair conclusion, no.

Mr. Sheean: Well, if there was a constant stream?

Dr. Harris. Yes.

Mr. Sheean: I am not saying it is fair to assume there was or was not a constant stream, but if we adopt your other assumption—

Dr. Harris. Yes.

Mr. Sheean (Continuing):—that there is a constant stream, as many going in at one end as there is coming out at the other, you comprise then a total period of fourteen years.

Dr. Harris. Yes.

Mr. Sheean: And in that segment of fourteen years in which an individual would travel, if the stream started and ended by reason of the flowing in at one end and out at the other, the average length of life in that fourteen year journey is eleven years?

Dr. Harris: No, that is not fair. I could not agree with that, because, at the beginning of the period of 1897 you will have a number of men who have been working ever since—Oh, they might have been working thirty or forty years.

Mr. Sheean: Yes, and that is why, upon the other table,

Doctor, it is not a safe assumption that there is a constant flowing in and a constant flowing out so as to keep at a state of equilibrium any particular segment you pick out of it, without knowing the numbers?

Dr. Harris: I should say from what we know of railroad employes that we got this stream from year to year; we have the statistics showing the number of employes on railroads throughout this whole period. It represents a constant stream.

Mr. Sheean: Do you say, then, Doctor, a constant stream flowing from 1897 to 1911?

Dr. Harris: Those are just the deaths that occurred in that period, of course.

Mr. Sheean: Well, but is the stream there that you speak of a practically constant stream, so that the travel through that part of the stream would be fairly representative of the series?

Dr. Harris: Yes, sir.

Mr. Sheean: Now, of course, you are counting only the deaths that occurred in that period?

Dr. Harris: Yes.

Mr. Sheean: But also, Doctor, you are only counting the part that comes into the stream during that period, are you not?

Dr. Harris: I have assumed that the men continued in railroad occupation. In fact, I am not making any computation about a stream in the case of the Engineers' Brotherhood. I have just found that there were 8,000 deaths, from that point to that point. Those were the figures, and of those 8,000 men who died, they worked eleven and a fraction years.

Mr. Sheean: You took the men who died within this period, did you?

Dr. Harris: Yes.

Mr. Sheean: Of fourteen years?

Dr. Harris: Yes.

Mr. Sheean: A man who was alive both before and after the end of that period would not be included?

Dr. Harris: Oh, no; you might just as well have taken one year, taken the number of men who died in any one year there, a certain number, and took the average on that. It would be, provided you had a representative year, just as fair as taking a larger number.

Mr. Sheean: In what way would you arrive at the average

occupational life of the person, if you took the one year period?

Dr. Harris: From the same method. Just find out those men who died say in 1900, as to how long they had worked at the engineer's trade.

Mr. Sheean: Was this computation of the engineers and firemen taken upon the basis of how long they had worked at their occupational trade?

Dr. Harris: Yes, "How long had you worked as an engineer"? It was taken from the report of the death.

Mr. Sheean: What page is that, Doctor? I am afraid I don't understand that table.

Dr. Harris: Well, I did not make it in the form of a table. it is on page 16, sir.

Mr. Sheean: This table was simply furnished you by the Brotherhood, of the number of years' service as engineers?

Dr. Harris: Yes.

Mr. Sheean: Is that averaged, the number of years' service averaged with the number of engineers spread opposite it?

Dr. Harris: No, there were 8,000 deaths, and I have forgotten, but you divide 8,000 into the total number of years that these 8,000 men had worked; I have forgotten the exact number. You add it up; one will have worked one year, and another forty, and you add up and divide the total by the 8,000.

Mr. Sheean: Was that the number of years' service as engineers, or the number of years that they were members of the organization?

Dr. Harris: It ought to have been—I am right about that, am I not, it was the number of years worked as an engineer?

Mr. Stone: Less one year; he would have to be an engineer one year before he would be eligible for membership in the insurance.

Mr. Sheean: But is the data you have here, Mr. Stone, the number of years he was covered by an insurance policy?

Mr. Stone: I understand so. That is the average term that the insured lived.

Mr. Sheean: That is where we were differing here, Doctor, as to the deductions drawn from it. I grant you if this column was as it was headed here, that your deductions might be right; but if the column is in fact, instead of being years in service as engineers, years of insured life—

Dr. Harris: Yes.

Mr. Sheean: Then my other deduction would be that on an average period of insured life of fourteen years, the average length of time that they lived was fourteen years.

Mr. Stone: If I might explain a little, Mr. Chairman: In the Eastern Arbitration we presented an exhibit showing that the average term of insured life, as I recall it, and I am simply speaking from memory now, was eleven years and seven days. Mr. Lee, representing the railroads, at once said those figures were wrong, and did not begin to represent the true state of affairs. That they would compile a list, and show the ages of engineers; and, they did compile a list, and it is found on pages 15 and 16, is that correct, Doctor?

Dr. Harris: Yes.

Mr. Stone: The only difference was that we said eleven years and seven days, and we took into consideration of course all those that had died and dropped by the wayside, and they showed 12.4 years, and they took into consideration all those who were still alive, so there was not so much difference between us after all.

Mr. Sheean: I just want to make that perfectly clear, that this column on page 16, Doctor, is now corrected to be "Years of insured life."

Dr. Harris: Well, it is not a column, sir; it is this text statement you see just below the table. The column you are reading is the exhibit of the railroads that Mr. Elisha Lee presented in the Concerted Wage Movement. You are looking at the other table.

Mr. Sheean: Perhaps I was wrong. The other one I referred to was by the B. of L. E.

Dr. Harris: It is not given in tabular form. It is a paragraph just below that table you were looking at on page 16.

Mr. Sheean: Oh, yes. "The total number of engineers included in the above table is 31,840"—

Dr. Harris: No, the next paragraph.

Mr. Sheean: Oh, yes, the next paragraph. "The report of the officials of the mutual insurance organization of the Brotherhood of Locomotive Engineers states that in the period from January 1, 1897, to December 31, 1911, inclusive, 8,054 death benefits or disablement benefits to members were paid and that

the average insured life of these 8,054 members was eleven years and seven days."

Now, the total possible insured life that they could have would be fourteen years during that period, would it not?

Dr. Harris: I don't see how you would get that at all.

Mr. Sheean: During that period, Doctor; covering a period of fourteen years.

Dr. Harris: In a period of fourteen years, 8,000 men died, or were so disabled that they were as good as dead for their occupation.

Mr. Sheean: And in that fourteen year period, the average length of insured life of those who died was eleven years. This is only the age of insured life shown by this table?

Dr. Harris: Yes.

Mr. Sheean: Isn't this in the end all that that computation means: Of those who died in that fourteen-year period, from 1897 to 1911, the average length of time that they had been insured was eleven years?

Dr. Harris: Yes, they were insured for that time. That practically represents the trade life, I should say.

Mr. Sheean: Perhaps we may disagree about the conclusion, Doctor.

Dr. Harris: Yes.

Mr. Sheean: But the table itself as prepared shows that of all persons who died in a fourteen-year period, the average length of insured life of the people thus dying, was eleven years?

Dr. Harris: Yes.

Mr. Sheean: The other table, compiled by the railroad companies, and submitted here at page what?

Dr. Harris: Fifteen.

Mr. Sheean: Page 15?

Dr. Harris: Yes.

Mr. Sheean: Shows that of the 31,000 employes living on the day on which the exhibit was presented, they had averaged a railroad life of something over twelve years to that date?

Dr. Harris: Yes.

Mr. Sheean: If all of them died on the day on which the exhibit was presented, there would still be an average length of life of twelve years in railroad service of the employes thus covered?

Dr. Harris: Yes.

Mr. Sheean: That is all.

RE-DIRECT EXAMINATION.

Mr. Stone: As to that fourteen-year period that Mr. Sheean is trying to get in there, is it not a fact, Dr. Harris, that some of the men who died during this period were men who perhaps had carried insurance thirty or forty years?

Dr. Harris: Yes.

Mr. Stone: And their death was recorded some time during that period and all the years they had been insured were counted?

Dr. Harris: Yes.

Mr. Stone: While others may have been insured only for a month or two months?

Dr. Harris: Yes.

Mr. Stone: We had one case that I call to mind during that period where he had carried insurance less than sixteen hours.

Dr. Harris: Yes.

Mr. Stone: But the average of all of them was eleven years and seven days?

Dr. Harris: Yes, sir.

Mr. Stone: And it is fair to assume that those figures give the right answer. There is no—any other period taken along the same line would probably show the same result, would it not?

Dr. Harris: If you had taken the whole life of your insurance organization from 1867 down, I presume it would have shown substantially the same result.

Mr. Stone: You understand, of course, that when a man becomes a member of the B. of L. E., that insurance is compulsory, do you not?

Dr. Harris: Yes.

Mr. Stone: He must take out and carry insurance as long as he remains a member?

Dr. Harris: Yes.

Mr. Stone: Can you conceive,—just letting your mind run riot—can you conceive of 63,000 or 31,673 engineers all being wiped out by an earthquake, just stopping at once?

Dr. Harris: That was purely a hypothetical question.

Mr. Stone: Well, let me ask you another purely hypo-

thetical question along the same line. Suppose they did, what would happen to the productive efficiency of railroad officials and everybody else in that section of the country at the same time.

Dr. Harris: I think you could answer that as well as I could. I imagine most trains would stop.

Mr. Stone: I imagine so myself. I understood you to say in reply—Mr. Sheean asked you, if I caught it correctly, and I don't desire to quote him wrong—he asked you this question, as I recall it, if all died in 1911, if you would use the same method to compute the average life, and you said yes, you would make the same computation. Would you use the same method if they all died on the same day? Would not you make a computation then that would show a much more favorable and much shorter trade life, on account of the new entrants?

Dr. Harris: Yes, we referred to that. The increase in the occupation has, of course, brought with it an increase in the membership of the insurance organization.

Mr. Stone: And does not this table presented by the railroads in the Eastern Arbitration (of course I take it for granted it is correct, without question) on page 15, doesn't it show the fallacy of their strong argument of the hope they hold out to a man that if he stays with them until he is 70 years old he will be retired on a pension, the very small per cent that ever get in sight of that?

Dr. Harris: I should say that was the same, whether it was the old age pension system of Germany, or the pension system of the railroads. The old age pension system of Germany is possible because it costs very little. The same thing would apply to any corporation, provided the age—

Mr. Stone: An old age pension is possible here because so few get it.

Dr. Harris: Any old age pension system at 70 is possible for that reason.

Mr. Stone: And that is the only reason that makes it possible, is it not?

Dr. Harris: Reducing the age to 65 or to 60—well I perhaps ought not to quote offhand, but reducing it to 65 in the German Empire would add something like three times the cost.

Mr. Stone: And about how long after they arrive at that retiring age of 70 can they hope to enjoy that pension.

Dr. Harris: The average insured life is extremely short, the average life of receipt of a benefit is extremely short. It is obviously—any actuarial table would show that.

Mr. Stone: So, in the end it is almost an illusion, is it not?

Dr. Harris: The number that receive an old age pension at 70 is extremely small, the proportion is very small indeed.

Mr. Stone: I think that is all.

RE-CROSS EXAMINATION.

Mr. Sheean: How long has the insurance feature of the Brotherhood of Locomotive Engineers been in vogue, do you know?

Dr. Harris: I don't remember the exact year. Perhaps one of the gentlemen nearby can tell.

Mr. Stone: December, 1867.

Mr. Sheean: And all members have been covered by the insurance feature during that time?

Mr. Stone: No, it was not compulsory up until 1890, January 1, 1890. So there are about, I suppose, somewhere in the neighborhood of three or four thousand members who do not belong, who never carried insurance.

Mr. Sheean: Then, Mr. Stone, if I may turn—

Mr. Stone: This is given on the insured members alone.

Mr. Sheean: On the insured members alone.

Mr. Stone: And it also covers a period wherein every member who came in during that time—all the new blood coming in was required to carry insurance. That is the reason why we start with 1890. On and after that time it was made compulsory.

Mr. Sheean: From 1890 as shown on page 13, Doctor, the number of members increased from 8,479 to 68,661 in 1913. But in the—arriving at insured life you have paid no attention to any change in membership during that time?

Dr. Harris: No. I suppose that it would—I doubt if it would have made any change in the average results. It might have affected the disposal, perhaps; it might have added or taken away one year.

Mr. Sheean: Doctor, do you think it would reflect pretty

fairly the average life of the engineer, if you took the 8,000 individuals who in 1890 were insured, and traced those 8,000 through all the remaining years to see how long they actually lived?

Dr. Harris: Yes, that would be very expensive and very difficult, but that would be—I don't think it would affect the result at all, but it would be an excellent way of tracing the length of trade life.

Mr. Sheean: Without again dwelling upon the question of insured life, the table presented by the railroads (I want to make that perfectly clear), at page 15, as to whether I understand that correctly or not, that, in order to bring the average trade life down to 12 years, an actual average of 12 years service in railroading, it would be necessary that all those men were railroading on the day that the exhibit was presented?

Dr. Harris: Well, I don't like to say yes to that, exactly, in the form that you have put it, sir. I would say that if you assume that on the day the exhibit was compiled there was this number of men, and their average was so much, the day following a certain number would have been retired, and a certain number would have been cut off, I don't see that it makes any difference exactly how we take that.

Mr. Sheean: So that we may understand it, I don't want to debate it, but the list as furnished there shows, and shows only, without any deductions, that on the day on which the exhibit was presented, of the 31,000 engineers then in the service of the company, they had averaged in service 12 years up to date.

Dr. Harris: At the date of the computation?

Mr. Sheean: Up to date?

Dr. Harris: Yes.

Mr. Burgess: Doctor, kindly refer to the period between 1897, page 13, and 1911. I just want to get a little clear on one point. I notice in the year 1897 there was a membership of 20,223. In the year 1911 there was a membership of 63,647, which would indicate that there were 43,424 men became insured after the year 1897. Now, assuming they all died in the year 1911, would not the term of their insured life be very much less than 11 years, the 43,000?

Dr. Harris: Yes, the increase would have that effect, yes. That is, the addition of new entrants would bring down—

Mr. Burgess: 43,424 became members after the year 1897?

Dr. Harris: Yes.

Mr. Burgess: Now, you answered that it would.

Dr. Harris: Yes, it would reduce it materially.

Mr. Sheean: But on the assumption on which I think you answered my question, that the flow in and out was steady.

Dr. Harris: Yes.

Mr. Sheean: And that being the underlying assumption in all your other tables.

Dr. Harris: That is the underlying assumption in the railroad tables, for instance.

Mr. Sheean: And if there was this constant flowing in and out that you speak of, then in order to get the average insured life, the average would be the same if you took it for the period completed by death or completed by computation. No matter how you compute it.

Dr. Harris: That is about right.

Mr. Burgess: But I am assuming or trying to assume, Doctor, that this 43,424, plus the 20,223, all died on the one day.

Dr. Harris: Yes.

Mr. Burgess: If I caught Mr. Sheean's question.

Mr. Park: Doctor, you spoke of your experience under the German pension laws. I believe you stated that 65 years as the retirement age would very materially increase the expense?

Dr. Harris: Yes, changing it from 70 to 65 would materially increase the expense.

Mr. Park: So, if the retiring age of locomotive engineers was 65 years, and that of all other employes was 70, he would have a very material benefit over the other employes?

Dr. Harris: Yes.

Mr. Park: And if he was retired under a pension system at 61, for disability, he would still have a more morked advantage over other employes?

Dr. Harris: That is you have an age—assume that all men 61 are disabled. You mean on that basis? Yes.

Mr. Park: A locomotive engineer can fire at 61.

Dr. Harris: That, of course, is quite different from assuming a general retirement, such as, for instance, the German Empire uses its old age pension law.

Mr. Park: But the benefit is very marked where you retire at 65 as compared with 70, or even 61 as compared with 65?

Dr. Harris: Assuming that the whole number of persons is retired automatically regardless of physical condition, the total cost, the money transferred from the national treasury to these individuals—there is a marked advantage, yes.

Mr. Burgess: But, Doctor, if it was optional whether he retired at 61, it would be the question of how many took advantage of that, wouldn't it?

Dr. Harris: Yes, I should think that—well, it is very difficult to say. Of course, I don't know of any national old age retiring system where it is optional.

Mr. Park: But with the railroads it is optional at 65, with the engineers, but with no other employes. It is obligatory at 70, and they may be retired at 61 for disability.

Mr. Burgess: The question I am trying to get, Doctor, was if it was optional with a body of engineers as to whether they would retire or not at 65, it would not be as marked as it is if it was obligatory at 65, because then the whole number of persons would have to retire?

Dr. Harris: Yes.

Mr. Stone: You understand, of course, Doctor, that we are throwing them on the scrap pile as so much worn out junk at from 42 to 45 and 47, because they are beyond the age limit; they could not get a job elsewhere if they are thrown out?

Dr. Harris: Your information is more intimate than mine.

Mr. Stone: I want to get back to those 31,000 men all dropping out on the same day—I have a photograph of that. The fact remains that those 31,000 men would all leave the service on the day that the Eastern railroads reported that the average term of railroad service would have been 12.4 years—that cannot be questioned?

Dr. Harris: Yes.

Mr. Stone: If, tomorrow, a thousand men dropped out and a thousand new men came in, it might change the figures some?

Dr. Harris: Very little.

Mr. Stone: So it is a fair estimate to make?

Dr. Harris: I should say so, yes.

Mr. Stone: That is all.

DIRECT EXAMINATION.

Mr. Carter: Doctor in 1912, did you make a special investigation for the Brotherhood of Locomotive Firemen and Enginemen in a certain Eastern Arbitration?

Dr. Harris: Yes.

Mr. Carter: It was not presented there, however, was it?

Dr. Harris: No.

Mr. Carter: It was incomplete, so far as printing was concerned.

Dr. Harris: Yes.

Mr. Carter: Have you revised that same report and brought it up to date?

Dr. Harris: Yes.

Mr. Carter: Do you identify this as the report originally prepared in 1912 and now revised, in 1914, and brought up to date?

Dr. Harris: Yes.

Mr. Carter: We would like to introduce this exhibit, Mr. Chairman and gentlemen, as Exhibit number 44.

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 44, January 13, 1915.")

Mr. Carter: Is this Exhibit of the same character as the one just presented?

Dr. Harris: In general it covers the same ground and uses much of the same material.

Mr. Carter: I note in the first section, under the caption "Extent of the Occupation," you publish a table taken from the Federal Census report, is that true?

Dr. Harris: Yes.

Mr. Carter: You quote there 73,000 locomotive firemen and 96,000 locomotive engineers. You also quote firemen of the age 14 to 15 years, 16 to 20 years, and so forth, and, at the top of page number 2, you say:

"The number of locomotive firemen in the United States as given above is 76,381. The report contains the warning that

the enumerators did not always separate the stationary firemen and stationary engineers from those employed on locomotives so that the above total may be slightly in excess of the actual number, which may be assumed to be about 75,000 men."

Evidently from the Census report, we get information that pertains to both locomotive and stationary engineers and firemen in the employment of railroad companies?

Dr. Harris: That is true.

Mr. Carter: It would include, I presume, to a certain extent, or to a large extent, all engineers and firemen in stationary plants owned or operated by the railroads?

Dr. Harris: That is not certain. I should say that there was a perfectly natural misunderstanding in counting 91,000,000 people and trying to find the occupations of those 91,000,000 people.

Mr. Carter: It shows a tendency, does it not, so far as ages are concerned?

Dr. Harris: It shows, in a most emphatic way, the age grouping of the locomotive firemen's occupation. Of course 45 years and over, there were only three thousand four hundred odd out of the total, and if we assume that total to be correct, that means approximately 96 per cent are under 45 years of age.

Mr. Carter: By turning to page 10, in a statement prepared by the railroads, I understand, from the United States Employers' Liability and Workmen's Compensation Commission, I find that for a three-year period for the railroads reported, there were 117,000 firemen reported and only 109,000 engineers.

Dr. Harris: Yes.

Mr. Carter: Would that not indicate, on page 10, that more locomotive firemen are employed than locomotive engineers?

Dr. Harris: Yes.

Mr. Carter: Back on page 1, it would indicate that a much larger number of locomotive engineers are employed than locomotive firemen. Would not that be accounted for by the fact that the stationary engineers employed by the railroads were included?

Dr. Harris: It would seem that some such mixing had taken place.

Mr. Carter: Then, this apparent conflict is not an inherent defect, it simply shows a different group of men included?

Dr. Harris: That is true.

Mr. Carter: I mean to say that this apparent conflict would not reflect upon the accuracy of the statement?

Dr. Harris: Not at all.

Mr. Carter: Will you briefly describe what your findings have been in this investigation, so far as it relates to locomotive firemen?

Dr. Harris: Well, the general characteristics are that the occupation of fireman is primarily a young man's occupation. As I stated a minute ago, over 96 per cent seem to be under 45 years of age, and very few occupations have such an age distribution as that. In addition, the great majority are native born Americans of native parents, and only about 6,000 of the total group, were foreign born. That would, on the whole, make for very favorable mortality rating, and ought to bring the firemen's group among the favored classes of insured persons.

Mr. Carter: Should make their mortality rating or death rating less?

Dr. Harris: Yes.

Mr. Carter: Not considering hazard?

Dr. Harris: That is quite true.

Mr. Carter: I note in your second chapter, "The Mortality of Locomotive Firemen," in reference to the Medico-Actuarial Investigation, you show in the last line of the last table on page 3, that the ratio of actual to expected deaths of locomotive firemen is 190.

Dr. Harris: Yes, sir.

Mr. Carter: Would that mean that locomotive firemen have almost double the risk of death of any other occupation?

Dr. Harris: Yes, it would mean that, in spite of this selection and this favorable age grouping, that locomotive firemen have a high death rate, and the actuaries who prepared this statement say that, on the whole, the excess over 100 reflects occupational hazard of the insured, so that the firemen's occupational hazard is 90 per cent above that of the insured persons of these American life companies.

Mr. Carter: Mr. Hawley, the last witness before yourself testified that it was the experience of the Brotherhood of Locomotive Firemen and Enginemen, in a ten year period, that 47 per cent died from railroad accidents. Do you discover a close relation between 47 per cent and the ratio of 190?

Dr. Harris: I should think that that would have a strong influence on the general death rate, simply because the men included are young men, whose arteries are sound and whose general disease rate is low.

Mr. Carter: You did not grasp the intent of my question I think, Dr. Harris. Mr. Hawley showed that 47 per cent of all deaths of members of the Brotherhood of Locomotive Firemen and Enginemen were caused by railroad accidents. In this statement of the Medico-Actuarial Investigation we may assume the 90 per cent additional hazard there is due to railroad accidents. Is there a close relation between a ratio of 190 and a percentage of 47?

Dr. Harris: Well, I should say it had a strong influence, but I would not care to assume that the accidents caused all of it. There might be occupational diseases or some other factor coming in, but without doubt that 47 per cent of the deaths being due to accident must, in a marked degree, affect the death rate; but I would not attribute the whole of that increase to the high death rate from accidents.

Mr. Carter: Yes, but still you have not understood me. What per cent does the ratio of 190 represent—it is not 50 per cent—if it was 200, it would be exactly 50 per cent—supposing you had 47 deaths out of 100, it would be 47 per cent, would it not?

Dr. Harris: Approximately.

Mr. Carter: How is that?

Dr. Harris: Approximately.

Mr. Carter: Well, suppose this 190 down here was exactly 200—on page 3—would not that be 50 per cent, or 100 per cent, would it be?

Dr. Harris: 100, yes.

Mr. Carter: Then Mr. Hawley's estimate of 47 per cent falls far below the estimate of the Medico-Actuarial Investigation's report?

Dr. Harris: Yes, but of course I would like to have it

clearly understood that there are other factors coming in, in addition to that 47 per cent. That is, without doubt, a very strong point.

Mr. Carter: What I am trying to bring out, Doctor,—the assertion of Mr. Hawley that 47 per cent of all deaths arose from railroad accidents was very questionable—it didn't seem possible—what I want to bring out is that does not this ratio of 1911, so far as deaths of locomotive firemen are concerned, indicates even a higher hazard than is indicated in the 47 per cent of deaths from railroad accidents reported by Mr. Hawley?

Dr. Harris: I should think it would be perfectly proper to make some such assertion.

Mr. Carter: I wanted to demonstrate, by your table here, that the Medico-Actuarial Investigation showed that the hazard was even greater, so far as the experience of these old line companies are concerned, than that reported by Mr. Hawley in his report.

Dr. Harris: Yes.

Mr. Carter: Is there anything in this specialized mortality investigation, given on page 3?

Dr. Harris: That is merely corroborative evidence of the more complete investigation made ten years later.

Mr. Carter: This is the earlier investigation?

Dr. Harris: Yes.

Mr. Carter: What was the experience of the New York Life Insurance Company in regard to firemen?

Dr. Harris: That also is a piece of corroborative evidence. The New York Life Insurance Company found that the mortality rate of locomotive firemen was 174 as compared with 100 for what they had a right to expect.

Mr. Carter: While the exact percentage may differ, the tendency is the same, is it?

Dr. Harris: Decidedly the same.

Mr. Carter: What is this next table that we have here, the table on page 5?

Dr. Harris: As in the case of the engineers' exhibit, it was difficult to find information covering the trade life of these employes. It was particularly difficult in the case of the firemen, because the fireman is an intermediary occupation, you might say, to the position of engineer. Now, these figures for

the mortality rates assume that the fireman continues to be a fireman throughout the time of his insured life, and that, of course, is not the fact; but in order to emphasize the fact that these figures are nevertheless strongly, or at any rate do uphold the contention of this death rate of firemen, as firemen, the last section of the table on page 5, shows that 131 out of 193 deaths occurred in five years.

Now, the Pennsylvania Railroad has published figures showing that out of 100 engineers who died, those 100 men had averaged six years as firemen, so that the death rate given here for firemen is very largely a rate for the—is certainly applicable for firemen during the first five years, and 131 out of the 193 would show, for instance, that 70 per cent of the deaths covered by this investigation took place within five years, so it is fair to assume that they were firemen within that period.

Mr. Carter: On the following page, page 6, under the sub-caption, "Estimate of the occupation hazard by life insurance practice,"—will you explain what that sets forth, so far as it affects firemen?

Dr. Harris: I have taken here, as an illustration, the practice of the New York Life Insurance Company in rating firemen, as compared with other occupations. The locomotive fireman is allowed to take no cheaper policy than a 20-year endowment, and must have twelve years added to his actual age, which is a distinct acknowledgement that the hazard is so high that they pretty nearly doubled the rate, as compared to a regular life policy, and they move his age up twelve years, so that if you assume that the average age of entrance into the occupation of fireman is about 24 years, that means they add 50 per cent to his age.

Mr. Carter: That being a fact, is it not your opinion that firemen are practically excluded, on account of the accidents?

Dr. Harris: I should say that it was such a high rate that it was purposely meant to discourage them from applying.

Mr. Carter: I note you have comparisons of other occupations in the table published on page 7. How do locomotive firemen rank there as a hazardous risk with all the others enumerated?

Dr. Harris: The firemen's rate is given in the fifth line of the table I unfortunately forgot to bring it in special type.

It shows that the only occupation having higher rates are those of miners and workers in stone and clay, and that more favorably situated occupations are structural iron workers, bridge builders, fire department, glass bevelers, and glass grinders and so on, all of which are distinctly dangerous occupations.

Mr. Carter: Then the result of this Medico-Actuarial Mortality Investigation, is that the locomotive firemen rank among the most hazardous of risks?

Dr. Harris: I should say that since the other groups are not selected in any way; that is, there is no physical examination imposed on a coal miner, or a stone cutter, and, as a rule, there would be a large number of persons of higher age entering, —I should say that the result would be that locomotive firemen ought to be ranked about the very top of this table of hazardous occupations.

Mr. Carter: I note you say, in commenting in the paragraph following the table on page 7:

"The risks connected with mining operations are well known and are so serious as to have a special government bureau devoted to their amelioration. The locomotive firemen may be said to rank next to the mining occupations."

That is, as a result of your investigation, that you express that opinion?

Dr. Harris: I should say so, yes.

Mr. Carter: Would you think it would be unfair if locomotive firemen should ask that the government include them in a special bureau, so far as protecting them from loss of life and limb is concerned, if the government has accorded that privilege to miners?

Dr. Harris: I should say that they have a strong claim for consideration.

Mr. Carter: I notice that you show the accidents to locomotive firemen under Section 3. Will you explain what you find there—on page 7—the returns of the Interstate Commerce Commission?

The Interstate Commerce Commission has never yet been able to separate the different trainmen, and firemen are included with all other trainmen. The death rate per 1,000 trainmen in the last period I could get the data for, was 4.67 for all train-

men, including, however, other occupations than locomotive firemen.

Mr. Carter: On page 8, under the sub-title, "Accident Rates Compiled by the United States Employers' Liability Commission," what are your comments and statements with regard to that?

Dr. Harris: Well, I should state that in this case this information was furnished by the railroads, and it was only those railroads that were, say, in the most prosperous condition and, say, that were being well managed, that were able to afford the expense of these rather elaborate computations. They covered three years, and I presume must have cost the railroads several hundred thousand dollars; and this being Eastern roads, and well managed roads, the deaths would be understated, rather than overstated, as compared with the average for the whole country.

Mr. Carter: I note they report 117,610 firemen. That means rather, 117,610 firemen exposed during the three year period, does it not?

Dr. Harris: It does.

Mr. Carter: It does not mean the actual number of firemen?

Dr. Harris: No.

Mr. Carter: But three times the actual number of firemen?

Dr. Harris: Yes.

Mr. Carter: You have some comments here again quoting from information secured through the Medico-Actuarial Investigation, beginning at the bottom of page 8, where you say: "The text of the report shows that the mortality of locomotive firemen from accident is the highest of all the occupations cited in the study, being 'nine times the normal.' The next highest rate given is for locomotive engineers with 'eight times the normal.' In other occupations with high mortality rates, the accident mortality was distinctly lower than that for locomotive firemen; thus for underground mining other than coal mines, the fatal accident rate was 'seven times the standard;' for anthracite coal miners six times, and for bituminous coal miners more than five times the standard; for structural iron workers, including housesmiths and bridge builders, the death rate from accident was six times the normal." Does that mean that of all

these hazardous occupations, so far as injury from accident is concerned, the locomotive fireman is the most hazardous of all?

Dr. Harris: Of all those included, and the highest are given on page 7, the locomotive firemen had the highest fatal accident rate of those which are there reported.

Mr. Carter: In the next paragraph, ratings of the International Association of Accident Underwriters, I note about two-thirds down you say "It is significant that this seventh class, officially designated as 'Extra-Hazardous,' is the one in which the locomotive firemen are rated. The standard classification shows that the occupation of locomotive firemen is practically the most hazardous that the companies will accept for accident insurance." That is the result of your investigation, is it not?

Dr. Harris: Yes. I have compared these with the standard rating book and compared the printed copy. It is a correct statement of the facts contained in the standard rating book.

Mr. Carter: With regard to the cost of an accident insurance policy, the maximum amount being $1,000 for locomotive firemen, and other extra-hazardous occupations as computed by the International Association of Accident Underwriters on February 1, 1912, what do you state regarding that?

Dr. Harris: For this policy allowed there, which is on the whole, one of the smallest that they find it worth while to accept business for, the locomotive fireman's fee is $35 per annum; the bridge builders and structural iron workers' fee is $34 per annum; while the powder mill employe is accepted at $40.

Mr. Carter: Then I understand that so far as the hazard of the occupation is concerned, the fireman is rated one point more hazardous than the structural iron worker, is that true?

Dr. Harris: Yes.

Mr. Carter: And five points less than powder mill employes?

Dr. Harris: Yes. Those are dollars, of course.

Mr. Carter: On page 10, you begin a statement, "The most recent study of bodily injury," and so forth. Will you review that, please?

Dr. Harris: This, again, is a statement which the railroads, rather generously endeavoring to assist the United States Government in formulating the basis of a national railway em-

ployes' compensation system, went over their accident records as far as they had them, and made this computation of disability, by class of disability.

For the firemen, the number of permanent total disablements on these roads, which are practically the best managed roads in the country, the permanent total disablements were 19; the permanent partial disablements were 193; and the temporary disablements, causing absence from work for more than two weeks, were over 6,000, nearly 7,000. Those, in order to get annual rates, should be divided by three, of course. But, those are the best managed roads in the country.

Mr. Carter: Would that mean that practically six out of one hundred men may expect to be temporarily disabled for a period of over two weeks every three years on those roads?

Mr. Sheean: Six out of 100,000, isn't it?

Dr. Harris: How is that? I don't think you got the right line there.

Mr. Carter: I said 6 out of 100 men. I roughly estimated that 6,843 out of 117,610 was about 6 out of 100 men.

Dr. Harris: Oh, yes.

Mr. Carter: Is that about right?

Dr. Harris: Every three years, yes, sir.

Mr. Sheean: Nineteen in the three years, or 6 in one year, isn't that it?

Dr. Harris: He is referring to the last column of temporary disablement.

Mr. Sheean: Oh, I thought he was reading from the Permanent Disability of over two weeks.

Mr. Sheean: Pardon me.

Mr. Carter: The question I asked was, that the experience of these railroads was that 6 firemen out of every 100 that worked may be expected to be temporarily disabled for a period of two weeks, because of the hazard of their occupation, in a period of three years?

Dr. Harris: Yes, that is correct.

Mr. Carter: Doctor, will you explain what permanent total disability is, as defined by the bill introduced in Congress, known as the Workmen's Compensation Bill?

Dr. Harris: I don't remember the exact definition that was

contained in that bill, but it meant that for railroading purposes, the man was out.

Mr. Carter: Did it not mean the loss of both eyes, or the loss of both hands, or the loss of both feet, or an injury equivalent thereto, as fixed by medical examination?

Dr. Harris: Yes, that is my general recollection of it.

Mr. Carter: What was a permanent partial disability, loss of a finger?

Dr. Harris: Yes, there was a long list, after the practice of the English Colonial method, of citing the disability, and giving the rate to be allowed for that disability, a loss of one eye, for instance, and those others you mentioned, were permanent partial disablements.

Mr. Carter: Or other injuries of lesser magnitude or seriousness than that of the loss of two hands, or two feet or two eyes?

Dr. Harris: Practically, yes.

Mr. Carter: It would show, then, that as to locomotive firemen, almost two, roughly estimated, out of 100, would stand a chance to suffer such a disability within a period of three years, out of every 100 firemen employed?

Dr. Harris: Yes.

Mr. Carter: On page 11 I note that you say that the reference from which this information comes was furnished by roads that include the best managed and the safest lines in the country. Would that indicate that the roads where they have not so many automatic block signals, where their track is not as perfect, that, possibly, or probably, the percentage of disabilities would be greater?

Dr. Harris: Yes.

Mr. Carter: I note you have a quotation there from a report by Dr. Sneve. I wish you would read from that and explain exactly what Dr. Sneve, of the Chicago Great Western, has discovered.

Dr. Harris: It was rather difficult to get any information showing the exact nature of any disablement which the firemen sustained, but Dr. Sneve, in an effort to see if something could not be done to install safety devices to reduce the accident rate, kept a computation of all the injuries that were reported to the company for one year, and gives the result of this computation.

I don't know that it is necessary to repeat the figures there, but his conclusion is as given at the top of page 12:

"We would have expected *a priori,* that the number of sprains would have been greatest in the brakemen"—or, I beg pardon, I should have started at the bottom of page 11.

"It will be seen from the table that, as far as occupation is concerned, the greatest number injured, strangely enough, were firemen. * * *"

Those are his words, "Strangely enough, were firemen."

"We should have expected *a priori,* that the number of strains would have been greatest in the brakemen, who are continually climbing over cars and running backward and forward along the train, but the number of these so injured was only 14. Next were engineers and section hands, * * * and finally all other occupations."

"It appears that engineers hurt their backs, brakemen their ankles, while the firemen sprain backs, wrists and shoulders indifferently."

Mr. Carter: What is your comment there, to sum up?

Dr. Harris: "The testimony of an experienced chief railway surgeon is to the effect that, of the injuries which he believes disable railroad men the greatest length of time, locomotive firemen are injured more than the other railroad employes, and that the nature of their occupation exposes practically all parts of the body to such injury."

Mr. Carter: Please turn back to page 11, Doctor. I find in this period of one year, that 24 firemen on the Chicago Great Western were injured, while there were only 14 brakemen. Have you a technical knowledge of railroading sufficient to express the opinion that there were twice as many brakemen on the road as there were firemen?

Dr. Harris: I have not, sir.

Mr. Carter: But if there were twice as many brakemen employed by the Chicago Great Western Railroad during that year, as there were firemen, then this apparent difference would be doubled, would it not?

Dr. Harris: Yes.

Mr. Carter: That is, while there were only 14 brakemen injured during this year on the Chicago Great Western, there were 24 firemen injured?

Dr. Harris: Yes.

Mr. Carter: I note on page 12 you have a list of firemen's injuries reported in Illinois. Will you explain what that is and what it shows?

Dr. Harris: These are only injuries causing disability for more than thirty days. Anything less than thirty days was not required to be reported by the law, and the point of giving this table here is merely to show the general hazard of firemen, as far as concerns physical disablement.

The average disability of these inurjies was 57.4 days per injury. The total indicates the general hazard of the occupation, by the uniform manner in which the injuries affected the different parts of the body, and then I cite them.

The fireman's occupation, however, exposes his whole body practically, and there is apparently no means of protecting him against the inherent hazard of this employment.

Mr. Carter: With regard to the loss of days because of injury, does not that greatly decrease his earning power?

Dr. Harris: Decidedly.

Mr. Carter: Unless it can be shown that the railroads kindly pay him his wages while he has a finger mashed, or a back sprained?

Dr. Harris: Yes. It is a well known fact to those who have studied industrial accidents, that these minor injuries are more expensive to provide for than the deaths; and this continual injury of all parts of his body on the part of the fireman, causes the fireman a very high expense.

Mr. Carter: Have you any knowledge of what proportion of these injuries the railroads recompense by paying the fireman his full wages for the period?

Dr. Harris: I have not, sir.

Mr. Carter: I suppose that depends on the nature of the injury, does it not, and the liability of the company?

Dr. Harris: I haven't much knowledge about that. I would prefer that you ask some other witnesses that question.

Mr. Carter: I note on page 13 that is a table taken from the mortality experience of the Brotherhood of Locomotive Firemen and Enginemen and certain other organizations. That was taken from the Firemens' Eastern Arbitration, was it not?

Dr. Harris: Yes, sir.

Mr. Carter: Well, inasmuch as the same matter will be again presented, or similar matter will be presented by Dr. Cory, we will pass that.

On page 14—well you commented on that table, therefore I will pass that.

By the way, Doctor, after this was prepared—printed, in fact, did you receive later information which we find pasted in the back of the book as an addenda?

Dr. Harris: Yes, Mr. Frederick L. Hoffman of the Prudential Insurance Company sent me a copy of a study he had made of the experience of the industrial department of his company in regard to a number of occupations, and from that it seems that in the Prudential Company 43.6 per cent of all the deaths of firemen were caused by accident.

Mr. Carter: Yesterday, I believe it was, through the experience of the Brotherhood of Locomotive Firemen and Enginemen, Mr. Hawley showed that for a ten year period about 47 per cent of all deaths of members of Brotherhood of Locomotive Firemen and Enginemen were occasioned by railway accidents. Is there a close approach here where it shows 43.6 per cent?

Dr. Harris: Yes, there is.

Mr. Carter: Would this be highly corroborative of the opinions expressed by Mr. Hawley?

Dr. Harris: It would, sir.

Mr. Carter: What were your general conclusions after having made this investigation?

Dr. Harris: First, there is general agreement that the occupation of locomotive fireman is "extra hazardous."

Second. "Two special studies of mortality conducted by the Actuarial Society of America show that the occupation of locomotive fireman has a higher death rate than the rate for engineer, express messenger, mail clerk, passenger trainman, passenger conductor and track supervisor.

Third, "As compared with other hazardous occupations, locomotive firemen have a mortality rate which is about the same as that for anthracite miners, but is higher than the rate for potters, for stone-cutters, for structural iron workers, for bridge builders, etc."

Fourth. "Fatal accidents cause about 50 per cent of the

deaths of the members of the firemen's insurance organization. Fatal accidents occur more frequently to firemen than to any other occupation included in the Medico-Actuarial Investigation; they were, for instance, distinctly more frequent than for miners of any kind, or for structural iron workers."

Fifth. "The standard rating of accident insurance companies groups locomotive firemen in the most dangerous class for which they usually accept insurance."

Sixth. "The fireman seems to be more exposed to injuries, like strains and sprains (which cause greater loss of time than other injuries) than any other group of railway employes."

Seventh. "The fireman's injuries affect all parts of his body, and special protection against them seems impossible. Fractured bones are a conspicuous feature of his injuries."

Eighth. "Loss and impairment of eyesight and liability to nervous disease are special hazards of the firemen's occupation."

Mr. Carter: Have you any other comment you desire to make, Doctor, with regard to firemen?

Dr. Harris: No, I would let the matter stand as far as any knowledge that I have at the present time.

Mr. Carter: On pages 15 and 16 you cite eminent authorities on the subject, do you not?

Dr. Harris: In each case where I have given a table I have given a short title, and the exact pages from which the table was taken, but in order to enable the complete verification of the tables, I have given the full titles of each of these sources, at the back of the book, so that they can be verified or checked up in any way desired.

Mr. Carter: That is all.

CROSS EXAMINATION.

Mr. Sheean: Doctor, on page 9 where you set out the amounts for a policy—three classes of employment—are you able to state what the life policy for a railroad brakeman is, the price of it?

Dr. Harris: I am not, sir, but it would be as high as that of a fireman, if not higher. You are perfectly—

Mr. Sheean: Considerably higher than that. I was wondering what other classes besides the railway brakemen you have not shown in the table—you say "Of the employes shown

here'' on a certain page they are higher than certain ones and lower than others. Beside railroad brakemen, what other classes have you dropped from it entirely?

Dr. Harris: Well, of course, I—the fact that you stated that I have dropped them may convey, perhaps, an intimation that you do not mean.

Mr. Sheean: Well, if it does I will modify the form of the question. All that I meant, Doctor, was that you specifically pointed out that, of the ones shown here, they were higher than certain ones. I was wondering what classes may obtain insurance as shown by this book or rate book referred to on page 9, but which are not extended here in the study.

Dr. Harris: Well, I have cited here, for instance, a powder mill employe. I think your assumption that the railroad brakeman has a higher charge is also true.

Mr. Sheean: Well, you say that is easily obtainable. Will you, Doctor, please file here as a part of your cross examination the list which shows all people set out in classes 5, 6, 7, 8 and 9?

Dr. Harris: Yes. Would it be sufficient if I submit to you the entire book, and let you put in the record such as you desire?

Mr. Sheean: Let me ask first, I don't know what the book is, does class 5, 6, 7, 8 and 9 enumerate all the classes of people who take these rates?

Dr. Harris: Yes.

Mr. Sheean: Well, now, all that I want is, simply—between 5 and 9 we have both the engineers and firemen, and if you will simply mail to the Secretary of the Board, if you will, a complete enumeration of lists or classes 5, 6, 7, 8 and 9. You attempted, Doctor, no deduction as to averaged insured life from the tabulation of the Brotherhood of Locomotive Firemen?

Dr. Harris: On which page is this?

Mr. Sheean: I say you attempted to make no deduction as to the occupational life?

Dr. Harris: No, it is a transitory occupation to a large degree, so I just simply found no material available in the Library of Congress, so I have just made no statement on the subject.

Mr. Sheean: And taking figures—even going back to 1882, shown on page 6.

Dr. Harris: Page 6.

Mr. Sheean: There are the details or the number of the members, the number of deaths; the average length of insured life deducible from those tables would not reflect in any way what the average occupational life may be?

Dr. Harris: No, I should say not, because of this interchange of occupation it would be extremely difficult to make a trustworthy computation of that.

Mr. Sheean: By the way, can you tell us offhand what the expectancy of life is at 45, just in a most general way?

Dr. Harris: I doubt if I could because, as a man reaches that age, his expectancy is somewhat better than otherwise would be. But I should say roughly 25 years. In a general way, 25 years.

Mr. Sheean: And what is your judgment, Doctor, as to the influence or the effect of density of traffic on the question of hazard? There seems to be some difference of opinion expressed at times as to whether or not it is more or less hazardous to operate on railroads where they have a great many trains operating, as against the branch line where there is one train a day.

Dr. Harris: It is rather difficult for a layman to express an opinion on that subject. The general impression is that with an increase of business the accident rate is likely to increase. You increase your number of employes, say, and take on new men or even undesirable men, in order to get your business done, the accident rate always increases with new men taken on.

Mr. Sheean: Well, when you speak of the territory in the East, of well managed railroads with modern appliances, and so forth, the best managed railroads in the country, you referred to those on which the traffic is by far the densest of anywhere in the country, particularly, railroads that you had in mind in the eulogy that you paid to the best managed railroads. They were the roads where there is the heaviest traffic.

Dr. Harris: Yes.

Mr. Sheean: Also the heaviest train loads?

Dr. Harris: I have not the facts at hand. I presume that is true.

Mr. Sheean: And your conclusion was that on those railroads where there was the heaviest traffic and the largest

trains, that the proportion of the hazard or risk to employes, engineers and firemen, was less than it would be in more sparsely settled territory?

Dr. Harris: I was putting it on the other basis. The fact that in the old roads where a large, continuous stream of traffic is, they are in a better condition to care for their employes than, say, a road passing through a sparsely settled district and not as well supplied with capital as is a road passing through a rich, industrial district, like the Pennsylvania.

Mr. Sheean: But whether or not there was a greater or less hazard upon the particular roads involved, by virtue of any difference in the density of traffic or the amount handled over the rails, you have made no investigation?

Dr. Harris: No, I just stated that, in general, these roads that supplied this information were among those generally accepted as the best managed and best protected roads in the country.

Mr. Sheean: You have made no study, I take it, Doctor, as to whether or not, per mile of road operated, the injury to employes is greater or less in the one section as compared with the other?

Dr. Harris: I have not. I should think the best estimate would be the tonnage.

Mr. Sheean: But you have made no comparison either way, either on tonnage or mileage?

Dr. Harris: No.

Mr. Sheean: And the conclusions you have drawn——

Dr. Harris: Are per thousand employes.

Mr. Sheean: Per thousand employes?

Dr. Harris: Yes.

Mr. Sheean. And, so far as your observation enables you to reach any conclusion, the hazards of the firemen have been present through all the years of railroad operation?

Dr. Harris: Yes. I should say, just speaking in what you might call an academic way, that the firemen's occupation at the present time was one that bids fair to be wiped out with the substitution, say, of electrical power; that, in general, a source of power that carries with it its ash pan and its coal supply and its water supply, is inevitably inefficient, and that a fireman's occupation is one that ought to be done away with.

Mr. Sheean: But, going back as far as you can, or as far as you have upon the statistics, there have been through all this time the hazards of the work?

Dr. Harris: Yes.

Mr. Sheean: Those have been growing less and less as conditions have improved?

Dr. Harris: These tables that we have given here show that for the last few years there is somewhat of an improvement, but that in earlier years the rate was just as low on some occasions. There have been instances, at an earlier time, of rates as low as the present.

Mr. Sheean: Yes, but in the last few years, say in the last three years, Doctor, there has been an improvement generally?

Mr. Carter: Refer to page 6, Doctor.

Dr. Harris: Page 6, is it? Oh, this information is a table showing the deaths per thousand members of the Brotherhood of Locomotive Firemen and Enginemen.

Mr. Carter: Insurance organization of the firemen and enginemen.

Mr. Sheean: That is merely the deaths. You have not combined deaths and disabilities. We went over that with Mr. Hawley.

Dr. Harris: Yes.

Mr. Sheean: Your own observation, Doctor, the statistical data that you have investigated, shows that there has been nothing, substantially, placed upon the fireman in railroad operation in the last three years in the way of hazard that was not there in previous years?

Dr. Harris: The statistics do not show a higher rate of disability except for temporary disablements, as I recall it. On page 10, Interstate Commerce Commission, it shows that injuries in the last year for trainmen have increased, and I see no way but to assume that the firemen have shared these injuries as other train employes have.

Mr. Sheean: And these tables and comparisons were read in connection with the possible or probable legislation that would make provisions for hazards incident to employes, compensation to cover it?

Dr. Harris: To show what it would cost the railroad.

Mr. Sheean: And so the table on page 12 to which you re-

ferred as reporting accidents in the State of Illinois, is furnished in connection with and is a part of the compensation paid employes?

Dr. Harris: No, it is a different law, sir. They have a law requiring reporting of injuries, and it is not connected with the compensation system.

Mr. Sheean: But there is, not only in Illinois but also in other states, in later years—there are laws whereby the employer does compensate for injuries, irrespective, entirely, of the question of negligence?

Dr. Harris: Yes.

Mr. Sheean: And, progressively with those laws, there have, during all this time in which the hazard has decreased, been laws, both state and federal, whereby the liability for injuries has increased and been made more clear?

Dr. Harris: I should say that this wave of compensation legislation that the country has had has meant a transfer of the burden which the firemen formerly bore to the community at large, say.

Dr. Harris: I should say that this wave of compensation eventual transfer to the community at large, that is done through the immediate channel of the employer, that is, it is the employer's money that is first appropriated or first used for this compensation, and if it is eventually transferred to the public at large, it is through this medium of the employer?

Dr. Harris: Yes.

Mr. Sheean: That is all, Doctor.

Mr. Carter: Doctor, the last questions from counsel for the railroads would indicate that there was a steadily decreasing hazard. Will you refer to page 6? The last column in the table there shows deaths per 1,000 members. Is there an apparent decrease or decline in the number of deaths per 1,000 members in that column?

Dr. Harris: Well, as I stated, there are cases, say—oh, as far back as the '90's, where the number of deaths per thousand was lower than it is now. I think myself it would have been preferable to have presented these figures say in five year averages. But all the way through this table, say, take in the '80's or '90's, you find rates lower than those at the present time. But

in the last ten years I suppose there is a slight improvement. Certainly, we hope there is.

Mr. Carter: But, Doctor, hastily I added the first five of the list and the last five, ignoring everything but thousandths. The first five is 2, 5, 4, 4, 6, aggregating 21. The last five is 6, 6, 7, 6, 6, aggregating 31. Would that indicate any increase?

Dr. Harris: Well, speaking as a man engaged in statistical work, I should say that the first five years were not quite fair. If you took the second five you would get a fairer.

Mr. Carter: Let us take the second five, Doctor. What are they? Don't ignore the smaller amounts. There is 4.751, 6.018, 7.432, 8.468, and 8.459.

Dr. Harris: 33.

Mr. Carter: 33?

Dr. Harris: Yes.

Mr. Carter: Now, what is the next five?

Dr. Harris: 39.

Mr. Carter: How is that?

Dr. Harris: 39, is it not?

Mr. Carter: No, there is 7, 14, 21, 27, 34.

Dr. Harris: 34.

Mr. Sheean: Can you add the five averages in the last column and get any result from that, or will you have to go back to your base?

Dr. Harris: Well, to be strictly accurate, one ought to go back and take them up, but for a crude computation and estimate it is permitted. With the understanding it is crude and not accurate.

Mr. Carter: Well, the statement was made by counsel for the railroads, but this time not agreed to by the witness, that there was a gradual decrease in the hazard to which the fireman was exposed—you did not say yes or no, unlike the former witness, you refused to say yes. Now, does not this show on page 6 that it is not true that there has been no decrease in the hazard?

Dr. Harris: Well, I have stated before, there were certain years running all the way through, where the rate was as low as it is, say, in the last two years.

Mr. Carter: I want to call your attention to the fact, Doctor, that in 1903, where the large amount is shown, it is for an 18 months' period.

Dr. Harris: Oh, yes.

Mr. Carter: That is for an 18 months' period; it is when there was a change in the fiscal years, from July 1st to January 1st. This statement that you are going to prepare, showing additional information to that shown on page 7 for risks that are extra-hazardous, as recited on page 9, in the rates of the International Association of Accident Underwriters, will you kindly furnish me with a copy of that statement?

Dr. Harris: Yes, sir. As I said before, I should prefer to furnish the book itself.

Mr. Sheean: All I wanted, Doctor, was simply the list to which you refer at page 9, in which you say there are nine different classes, 1, 2, 3, 4, 5, 6, 7, 8, 9,

Dr. Harris: All right.

Mr. Sheean: Am I right in the suggestion that anything above five would be of no particular interest—we start for both the engineers and firemen, with class 5, I gather from the other exhibit?

Dr. Harris: Yes. Class 1 is the lowest class, and you want the five most hazardous groups, do you not? All occupations in the five most hazardous groups, that is your point, is it not?

Mr. Sheean: Yes.

Dr. Harris: That is all hazardous occupations in the upper half of this schedule, practically.

Mr. Sheean: How much of a document is this schedule?

Dr. Harris: It is a 100-page pamphlet of that shape. (Indicating.)

Mr. Sheean: The schedule itself is that much?

Dr. Harris: Yes. It is an accident rating book, of which I have given the title here, which I presume you could get from any library here in Chicago. I carefully gave the full title of all these books, so that anything you desired to check up, you could find without any difficulty. The title is given on page 15. "Classification of Occupations for Accident and Health Insurance. As Approved by the International Association of Accident Underwriters. Revised and Corrected to February 1, 1912." It is published by the Spectator Company, one of the insurance publishers.

Mr. Sheean: All I wanted is a list of the occupations.

Dr. Harris: Yes.

Mr. Sheean: Does that take as many pages—I do not want to ask you to do anything unreasonable, but intended to ask whether you could easily get a list of the occupations?

Dr. Harris: Yes, I could.

Mr. Sheean: And that is not very much?

Dr. Harris: No.

Mr. Sheean: I wanted to be entirely reasonable.

Mr. Carter: You will include the firemen and others more hazardous?

Dr. Harris: Yes.

Mr. Carter: Others less hazardous are shown here, are they?

Dr. Harris: No. I just gave a few above and below. I assumed, perhaps without sufficient warrant, that most of you were familiar with this data.

Mr. Carter: I know, Doctor, that you have no technical information upon the subject, so far as physical condition of roads and the hazard occasioned thereby is concerned, but if it could be shown that on a branch line the ties were more or less rotted, the spikes more or less loosened, the bridges more or less weakened, do you think that the hazard would be less on a branch line than on a main line, which is kept up to the highest state of efficiency?

Dr. Harris: Assuming what you say, I should say yes.

Mr. Carter: You think, then, the hazard would be as great from defective appliances, conditions, and so forth, as perhaps from the density of traffic?

Dr. Harris: Yes, sir.

Mr. Carter: I notice you stated a while ago that the firemen's occupation was transitory. Of course, we have long known that, but why did that come under your observation?

Dr. Harris: Well, as I recall stating it, there was this promotion to the engineer group. That is the point of your inquiry?

Mr. Carter: That would be one stage of the transition. You did not take into consideration, perhaps, the fact that a vast majority of men who try to fire locomotives give up the job.

Dr. Harris: No, I did not.

Mr. Carter: My attention is called to the fact that your answer was perhaps the reverse of what you intended. (Addressing the reporter.) Will you read the question in regard to the branch lines, and the reply thereto?

Mr. Sheean: Well, we will agree, on the hypothesis stated, the answer would be as suggested in the question.

Mr. Byram: Doctor, just a question. You have not made any effort to estimate the average trade life, so-called, of the firemen?

Dr. Harris: No, sir.

Mr. Byram: Now, if the fireman's vocation is preliminary, or intermediary, as you expressed it, to the engineer's work, in order to arrive at what you might call the engineman's industrial life, it would be necessary to add the trade life of the fireman to the trade life of the engineer?

Dr. Harris: Yes, sir.

Mr. Byram: But you have not made any figures for that?

Dr. Harris: As I stated in my testimony, the Pennsylvania Railroad took up 100 of its employes who had died, and they showed that the average length of service as firemen, on the Pennsylvania, for those 100, was six years; so that, accepting this, if you had accepted this 12½ years, then you get 18 years as the working life, assuming that a man begins his occupation as fireman.

Mr. Byram: And stops at the time the computation is made.

Dr. Harris: Yes, sir.

Mr. Byram: That is all.

Mr. Carter: On a road that has now been operated successfully for a considerable period of years, have you any idea how many men, engineers and firemen, are in service today that were in service eighteen years ago?

Dr. Harris: I haven't sir.

Mr. Carter: Supposing I would tell you that, for a guess, less than five out of one hundred who had entered service as firemen, survived the eighteen years, then these estimates made by railroads would be not representing the facts?

Dr. Harris: Well, the fact that you have in mind is different from the fact that the railroads had in mind when they presented their figures. You are stating that a large group of men

begin the work of fireman and drop out in a very short time. The railroads, in their statement, take a cross-section of 30,000 and have said that they had been working twelve and a fraction years.

Mr. Carter: Out of 30,000 men.

Dr. Harris: Yes, out of 30,000 men; but of course that does not pay any attention whatever to this large number of men who have, you say, worked for a while and then dropped out.

Mr. Carter: Were those 30,000 men firemen or engineers?

Dr. Harris: Engineers.

Mr. Carter: And it is stated that those 30,000 men had fired six years?

Dr. Harris: Pardon me. I was trying to supply some information from another computation that the Pennsylvania Railroad made, out of one hundred cases.

Mr. Carter: But for those 30,000 who had fired six years —I think it can be shown that 500,000 had fired and had never run an engine. That is, for twelve years, in the United States, I mean.

(No response.)

The Chairman: Anything further?

Mr. Carter: That is all.

The Chairman: We will adjourn until 10 o'clock tomorrow morning.

(Whereup, at 5 o'clock P. M., January 13, 1915, an adjournment was taken to January 14, 1915, at 10 o'clock A. M.)

IN THE MATTER OF THE
ARBITRATION
between the
WESTERN RAILWAYS
and
BROTHERHOOD OF LOCOMOTIVE ENGINEERS
and
BROTHERHOOD OF LOCOMOTIVE FIREMEN AND ENGINEMEN
under the Act approved July 15, 1913, *by agreement dated August* 3, 1914.

Chicago, Illinois, January 14, 1915.

Met pursuant to adjournment at 10:04 A. M.
Present: Arbitrators and parties as before.

The Chairman: Mr. Park desires to correct the record.

Mr. Park: In Volume 26, page 2637, the last line, it reads, question by Mr. Park: "A locomotive engineer can fire at 61?" That should be "Can retire at 61."

And volume 26, page 2558, line 12, seventh word now reading "trains" should read "claims."

The Chairman: Are there any other corrections? If not, you may proceed, Mr. Stone.

Mr. Stone: I will call Mr. Futch.

W. E. FUTCH was called as a witness and, having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Stone: Mr. Chairman and gentlemen of the Board: This is Mr. W. E. Futch, President of the Locomotive Engineers' Mutual Life and Accident Insurance Association.

I should like to explain that our insurance association of the Brotherhood of Locomotive Engineers is incorporated under the laws of Ohio, and it is really an organization within an organization. It has a separate president and secretary.

Mr. Futch, I wish you would tell the Board just in a few short sentences, who you are, and what you are, and what your former experience was before becoming president.

Mr. Futch: Well, I was a locomotive engineer for thirteen years, and was, from that occupation, elected president of the Locomotive Engineers Mutual Life and Accident Insurance Association.

Mr. Stone: In what year were you elected?

Mr. Futch: In 1896.

Mr. Stone: And you have been president continuously ever since?

Mr. Futch: Nineteen years; this May it will be nineteen years.

Mr. Stone: At the present time how much insurance risks is the association carrying?

Mr. Futch: $145,590,750.

Mr. Stone: In the last year how much insurance, or how many claims, and amounting to how much, have you paid?

Mr. Futch: We paid out $3,063,318.82.

Mr. Stone: In the last twelve months?

Mr. Futch: In the last twelve months, 1914.

Mr. Stone: And up to date, how much insurance have you paid out, since the organization?

Mr. Futch: $30,702,862.23.

Mr. Stone: Can you give us how much has been paid out in the last ten years? Do you have that anywhere?

Mr. Futch: No. I can get it for you by figuring it out here in a few minutes.

Mr. Stone: I thought you got it in a message yesterday.

Mr. Futch: No, that didn't come. Approximately $16,000,000.

Mr. Stone: In ten years?

Mr. Futch: Yes, sir.

Mr. Stone: Since 1890 insurance has been compulsory, has it not?

Mr. Futch: Yes, sir; January 1st, 1890, all members joining the Brotherhood were compelled to take out and carry one or more policies.

Mr. Stone: And in case they forfeited insurance they were expelled from the organization?

Mr. Futch: Yes, sir.

Mr. Stone: Why was it necessary to make it compulsory?

Mr. Futch: That it might be a success, and to protect the families of the members of the organization, relieving them of being objects of charity and a burden on the organization, after the engineer's death.

Mr. Stone: You heard the figures quoted by Dr. Harris yesterday, did you not, when he was on the witness stand?

Mr. Futch: Yes, sir.

Mr. Stone: Those figures were furnished by your office, were they not?

Mr. Futch: Yes, sir.

Mr. Stone: You are perfectly willing to testify that they are absolutely correct?

Mr. Futch: Absolutely correct; taken from our records.

Mr. Stone: Was his statement that the average term of insured life of the member in your association was eleven years and seven days, correct?

Mr. Futch: The average insured life as shown by our records. That is, all the policy holders of our association that have died within the period covered, shows it to be the time or period stated by Dr. Harris, eleven years and seven days.

The Chairman: Had those members taken out insurance at the date they entered service?

Mr. Futch: Well, no. The rules of the Brotherhood require a promoted man, that is, from fireman to engineer, to run a certain period of time to prove his efficiency, before we take him into the organization.

The Chairman: What length of time?

Mr. Futch: It used to be a year. Now it is six months.

The Chairman: He would not be eligible to take out insurance until he became a regular engineer?

Mr. Futch: Until he became a member of the Brotherhood of Locomotive Engineers.

The Chairman: He must first qualify himself as an engineer before he is eligible to membership in the Brotherhood?

Mr. Futch: Yes, sir.

Mr. Stone: Is there any means provided whereby a man who finds himself in financial straits can have his insurance protected?

Mr. Futch: The Association has provided a fund known as the relief fund, from which, under certain conditions, a policy holder can obtain 50 per cent of the policy, which is charged against the insurance, and when the policy matures whatever amount he may have obtained to relieve him of his financial embarrassments, is deducted from the policy.

Mr. Stone: Is there any interest charge on that?

Mr. Futch: None whatever.

Mr. Stone: The same is true in regard to his dues?

Mr. Futch: If a member, after having been a member continuously for five years, is unable to pay his assessments because of being out of employment or unable to work, the Association will protect his insurance and charge it against the same. No interest is charged on deferred payments of assessments.

Mr. Stone: It is simply deducted from the amount when the policy is paid?

Mr. Futch: That is correct.

Mr. Stone: That is done to get them over these financial depressions when perhaps there is no work?

Mr. Futch: Yes.

Mr. Stone: You also carry an accident insurance?

Mr. Futch: Yes.

Mr. Stone: Practically written on the same line as the Old Line companies?

Mr. Futch: It is the same as the Old Line companies, except different rates.

Mr. Stone: The only difference is there are no fancy salaries with ours; it is sold absolutely at cost?

Mr. Futch: That is the idea.

Mr. Stone: About how many cents of each dollar paid in is returned to the policy holder?

Mr. Futch: 93 cents. 93 cents out of each dollar collected for assessments is returned to members through the payment of claims.

Mr. Stone: 5 per cent of that goes to the local collector?

Mr. Futch: Yes, and 2 per cent for the management of the affairs at the home office.

Mr. Stone: About how much money can you recall has been paid out in this accident insurance?

Mr. Futch: I have the exact figures here.

Mr. Stone: Will you read them, please?

Mr. Futch: We have paid out, since this accident insurance was put in force—

Mr. Stone: What date was that?

Mr. Futch: That was in October, 1906, first day of October, 1906. Since then we have paid 152 death claims, aggregating in money $264,772.14.

Mr. Stone: How much in accident claims?

Mr. Futch: In weekly indemnity claims—we have paid more claims than we have policy holders.

Mr. Stone: Some policy holders perhaps have gotten more than one claim?

Mr. Futch: More than one claim. We have paid 7,281 claims. The amount of money paid out is $632,394.95, making the total disbursements for the indemnity insurance of $887,-167.09.

Mr. Stone: That accident insurance that you speak of there is separate and distinct from the other insurance?

Mr. Futch: Exactly.

Mr. Stone: It is not compulsory?

Mr. Futch: It is not compulsory.

Mr. Stone: Purely voluntary on the part of the men. But those amounts that you have read, that you have paid out in insurance, simply show what you have paid for the wreckage of these men on these railroads?

Mr. Futch: I suppose you might term it as such. These are for claims, accidental death claims and weekly indemnity claims, that have been incurred in the railroad service. That is, a large percentage of them.

Mr. Stone: Well, don't you think that any industry ought to bear the burden of its own wreckage? Do you think the men should be called upon to pay this out of their hard-earned savings?

Mr. Futch: Well, it seems to me from a humanitarian standpoint, as well as from a business standpoint, that any institution should in some way take care of its wreckage, as you term it, by adequate compensation, if not in any other way, and I would prefer it by adequate compensation instead of through so called philanthropy, such as pensions, and voluntary reliefs, and things of that nature.

Mr. Stone: Well, so far as the pension is concerned, it is largely a matter of delusion, is it not?

Mr. Futch: I can give you some idea along that line by referring to our records here, which are brought up to 1911.

I have before me here a list of the membership or policy holders of our association, showing the number of members at the different ages and the amount of insurance that they carry at that age. I commence at the oldest and read back for just a little ways. For instance, we had on December 31st, 1911:

One member who was 93 years of age.
Two members who were 90 years of age.
Three members who were 88 years of age.
One member who was 87 years of age.
Four members who were 86 years of age.
Seven members who were 85 years of age.
Five members who were 84 years of age.
Six members who were 83 years of age.
Twelve members who were 82 years of age.
Fifteen members who were 81 years of age.
Sixteen members who were 80 years of age.
Twenty members who were 79 years of age.
Twenty-five members who were 78 years of age.
Twenty-eight members who were 77 years of age.
Thirty-seven members who were 76 years of age.
Fifty-one members who were 75 years of age.
Fifty-one members who were 74 years of age.
Fifty-nine members who were 73 years of age.
Sixty members who were 72 years of age.
Ninety members who were 71 years of age.
Ninety-two members who were 70 years of age.

Now, that brings it to the age of retirement from the service. That is the highest age, I believe, that I have any knowledge of, that railroad companies retire them for a pension.

Mr. Park: Have you got the figures further down, to 61?

Mr. Futch: Yes.

Mr. Park: Read those, please?

Mr. Stone: You mean all told, not an example, Mr. Futch?

Mr. Futch: Just a moment. Let me read this into the record for Mr. Park. I left off at 70, didn't I?

Mr. Park: 70.

Mr. Futch: 107, 69 years of age.

120, 68 years of age.

157, 67 years of age.

212, 66 years of age.

219, 65 years of age.

293, 64 years of age.

292, 63 years of age.

381, 62 years of age.

411, 61 years of age.

Is that far enough?

Mr. Park: That is sufficient.

The Chairman: What was the total membership of your organization at that time?

Mr. Futch: At that time it was, that was in 1911, 63,647.

Mr. Stone: You have no assurance, Mr. Futch, that that number you have read there are all in railroad service, have you? You have nothing to show whether they are in railroad service or not?

Mr. Futch: No. And of course above 70 I would presume none of them were in service, and very few above 65, probably. Now I read that to answer that question.

Mr. Stone: It is also true, is it not, that many of these men leave railroad service long before that? Many of our members who carry insurance, either through physical examination or defective eyesight, or being discharged in the interest of discipline, find themselves beyond the age limit and are out of railroad service?

Mr. Futch: That is true.

Mr. Stone: Have you any figures to show the average age of these claims you have paid?

Mr. Futch: The average age—

Mr. Stone: At the time you paid the policy?

Mr. Futch: At the time the policies were paid?

Mr. Stone: Yes.

Mr. Futch: I don't think I have that.

Mr. Stone: That is, of all the claims you have paid in the last year or in any period?

Mr. Futch: No, I have not that. I can give you the average of the members.

Mr. Stone: What is the average age of all your members?

Mr. Futch: 41 years, 8 months and 7 days.

Mr. Stone: But, in compiling your list you found that the greatest volume of your membership run somewhere between 30 and 50 years, did you not?

Mr. Futch: Yes, 30 and 45.

Mr. Stone: I think Mr. Harris stated yesterday that about 27 per cent of the claims paid were men who were killed in service, were killed. Is that correct? I am just speaking from memory now. I am not referring to notes. I think he said about that.

Mr. Futch: I think your memory fails you there, probably.

Mr. Stone: I would not be surprised, so many figures as I have in my head, if I did occasionally go wrong.

Mr. Futch: Our records would indicate—for instance, you take this report I am reading from, covering the period of two years, wherein we paid out $3,424,213.92, only $2,146,213.92 was paid because of death from natural causes.

Mr. Stone: The other million was—

Mr. Futch: There was $870,750 paid on accidental deaths, where death was caused by a railroad accident.

Mr. Stone: That would be somewhere near 30 to 35 per cent?

Mr. Futch: Well, now, wait a minute. We go down further here and find we have paid $141,000 for amputation of either a hand or a foot.

Mr. Stone: Well, he is practically dead so far as railroading is concerned, he is done.

Mr. Futch: That ends his service. And in addition to that we have paid $180,750 because of total or permanent blindness in one or both eyes. That makes $1,192,500 of the $3,424,213.92 that was paid because of death or disability incurred in the service.

Mr. Stone: Added to that, does that include suicides?

Mr. Futch: No, sir. I have also here a list of suicides, nineteen; $42,000.

Mr. Stone: That, in all fairness, should be added to it,

because the chances are the man's nervous system went to smash before he committed suicide, from the strain.

Mr. Futch: We have "Drowned, 8, for $13,500; shot, 17, for $30,000." They are all separated. Those are the actual figures from our records.

Mr. Stone: That is compiled from the report you make to the Brotherhood?

Mr. Futch: To the convention.

Mr. Stone: That does not represent all that is done for these men. You have—in addition to that there is the indigent fund of the organization?

Mr. Futch: Yes, but though there is an indigent fund from which, where members are totally disabled and have no income, the Brotherhood itself pays them $30 a month, that actually comes out of the pockets of the members, and is never returned.

Mr. Stone: That is, he may have gotten his insurance and used it up and he isn't dead yet, and finds himself an object of charity?

Mr. Futch: That is true. My understanding is that our organization hasn't a single member, unless violently insane, who is a public charge, anywhere on the continent.

Mr. Stone: We take care of our own?

Mr. Futch: We take care of our own members.

Mr. Stone: In addition to that, we also contribute to the Highland Park home in western Chicago here, which the four organizations together keep up?

Mr. Futch: That is true.

Mr. Stone: And take care of our men who have no home or friends?

Mr. Futch: Yes, sir.

Mr. Stone: At the present time I believe there are about 75 inmates out there. That is kept up by an assessment of a certain amount on the members of the different organizations?

Mr. Futch: Kept up by an assessment on the members of the different organizations, yes, sir.

Mr. Stone: Each year?

Mr. Futch: Each year.

Mr. Stone: In addition to that, about three and a half million dollars has been given from the savings of the men to take care of the families of these men?

Mr. Futch: Widows and orphans.

Mr. Stone: I think that is all, Mr. Chairman.

Mr. Burgess: Mr. Futch, can you state about what the monthly payroll is from the indigent fund?

Mr. Futch: Not from the indigent fund; that is not in the insurance association. That is a Brotherhood fund.

Mr. Burgess: Well, you stated there was an indigent fund. I was asking if you could state about what that was, monthly.

Mr. Futch: I was just saying that that was a Brotherhood fund and not in the insurance association.

Mr. Burgess: You don't know then what the monthly payment is from the indigent fund?

Mr. Futch: Do you know how many are on the indigent fund, Mr. Stone?

Mr. Stone: About 392, I think, at the present time; speaking from memory now.

Mr. Futch: Well, between $11,000 and $12,000.

Mr. Burgess: Now, Mr. Futch, are your accounts and books subject to inspection by the superintendent of insurance of the State of Ohio?

Mr. Futch: They are not only subject to inspection, but they are annually inspected by the insurance department.

Mr. Burgess: Of the state of Ohio?

Mr. Futch: Of the state of Ohio.

Mr. Burgess: Are there commissioners from other states that come there to your office to inspect the books?

Mr. Futch: Not from other states. They take the report of approval or disapprval of the home insurance superintendent.

Mr. Burgess: If the superintendent of insurance of the State of Ohio found your accounts wrong or imperfectly kept, he would have the right to take charge of your office, under the laws of Ohio?

Mr. Futch: Yes, sir.

Mr. Burgess: Can you adopt any law in the convention for the government of the insurance association without the approval of the superintendent of insurance of the State of Ohio?

Mr. Futch: We have to submit for the approval of the superintendent of insurance of Ohio all laws passed at our an-

nual conventions before we can put them in force, and if they should not meet with his approval, they are not printed or enforced.

Mr. Burgess: Then, we are to understand, that the superintendent of insurance, or some gentleman from his office, does inspect your books of account, annually?

Mr. Futch: Yes, sir.

Mr. Burgess: That is all.

Mr. Stone: In addition to that your books are kept in the form prescribed by the superintendent of insurance, and the reports made are on a regular form?

Mr. Futch: The reports that are made to the superintendent of insurance are on forms prescribed by him, but our method of keeping the accounts is left to us, so long as they are intellibible and correct.

Mr. Stone: That is all:

CROSS EXAMINATION.

Mr. Sheean: I understood you to say something about members being required to take out some form of insurance—do you have different policies?

Mr. Futch: We have, as you have understood, no doubt, a regular life insurance and then we have the accident or indemnity insurance in addition. Commencing January 1st, 1890; the convention prior to that date, at Denver, Colorado, passed a law requiring all members joining the Brotherhood, in future, to take out and carry one or more policies of the regular life insurance, $1,500 or $3,000 or $4,500. You can take one or three, provided you are within the age limit for these different amounts.

Mr. Sheean: Then you do have age limits for these different forms of policy?

Mr. Futch: No, sir. We have this regulation as to age limit, that a man up to 40 years can take out and carry the full $4,500; up to 45 he can take out $3,000 only, and beyond that, if he joins the Brotherhood he can only take out $1,500 policy. They being all the same rate.

Mr. Sheean: You make those three divisions as to each, in determining the amount you will underwrite?

Mr. Futch: Yes.

Mr. Sheean: Do you know what the average age was in 1890? You have given us the average age of the membership at the present time?

Mr. Futch: No. I did not become president of the association until 1896, and prior to that time I am not in a position to give you any information.

Mr. Sheean: Before 1890 you do know the question of becoming a member was entirely voluntary?

Mr. Futch: Voluntary.

Mr. Sheean: And you do know, I assume, that during the latter time a great many firemen continued to carry their insurance in the Organization of Firemen even after becoming engineers?

Mr. Futch: Yes, sir.

Mr. Sheean: So that, if and when they conclude to come into the Engineers' Organization, they may come in either at this period below 40, between 40 or 45, or above 45?

Mr. Futch: To 50.

Mr. Sheean: Above 50?

Mr. Futch: To 50.

Mr. Sheean: This average age that you have now in the organization of 41 years, that is taken at the same time, is it, as the average—or covers the same average as the average insured life of those who died?

Mr. Futch: Yes.

Mr. Sheean: Down to the same date?

Mr. Futch: Yes, down to the same date.

Mr. Sheean: 1913, that is?

Mr. Futch: No, that is down to December 31, 1911.

Mr. Sheean: So that at that time, going back to 1890, for the purposes of the average insured age, that was?

Mr. Futch: No, that takes them from December, 1867. Every member is included. That brings the old 93-year-old brother in on that list.

Mr. Sheean: But as to the average insured life of those who died, how far back does that go?

Mr. Futch: That takes in every claim paid—the first one paid was in May, 1868.

Mr. Sheean: And the total number of those who were paid

up to December 31, 1911, was included in determining the average length of life?

Mr. Futch: Insured life, making a distinction.

Mr. Sheean: Of insured life, yes. Whether that average age of insured life was based upon an average age at the time of insurance or any particular age, you have no knowledge?

Mr. Futch: We do not figure that, no, sir. We did not take that into consideration.

Mr. Sheean: But you do recognize in this graduation of policies that there is a different expectancy of insurance age as between 40 and 45 and as beyond 50.

Mr. Futch: Certainly.

Mr. Sheean: The detail that Mr. Stone referred to in the question as being accurate, I assume, is this page 13, in this exhibit put in yesterday.

Mr. Futch: There are two pages there.

Mr. Sheean: Wherever, in Dr. Harris' exhibit, information is being referred to as having been obtained from the Brotherhood of Locomotive Engineers?

Mr. Futch: Yes, sir.

Mr. Sheean: Back of 1890 could you give us, in a general way, whether or not the increase in membership had been at all in keeping with the rapid increase since that time?

Mr. Futch: I can give it to you year for year; the number of members each year, if you want it.

Mr. Sheean: Yes, I wish you would do that, please.

Mr. Futch: It is quite a long list of them, though.

Mr. Stone: They are given in Dr. Harris' statement.

Mr. Sheean: From 1890 on, yes.

Mr. Futch: Supposing I just submit this list and do not read it in. You see it is from 1868 to 1911; it shows the number of members at the end of each year.

Mr. Sheean: We have set out here everything from 1890 on.

Mr. Futch: Yes.

Mr. Sheean: And if you can, just supply that list from 1868 down to 1890, so as to see, if we may, how many members there were in the different years.

Mr. Futch: I have it for each year from 1868 to 1911, and

I can give you the other three years to December 31st, 1914, by getting it.

Mr. Sheean: We have it printed in the exhibit, all of that part from 1890 on.

Mr. Futch: Yes.

Mr. Sheean: So if you can, just supply that previous list.

Mr. Stone: What he wants is from 1868 to 1890.

Mr. Futch: Yes, I get it. I see.

Mr. Sheean: Now, referring to the accident insurance, to the amount that has been paid out, and Mr. Stone's question about the employer bearing no part of the resulting expense, is your policy limited in any way, or is it influenced in any way, by the question of whether the railroad companies do or do not pay for the same accident?

Mr. Futch: No, sir.

Mr. Sheean: So that on the amount you give as paid out by these accident reports, it may be that the railroad companies have paid the same or even more, for the same accidents?

Mr. Futch: That could be true.

Mr. Sheean: There is nothing by the fact that you have paid as a matter of insurance, under your policies, that would indicate whether the railroad company have or have not paid for that?

Mr. Futch: There is not.

Mr. Sheean: You stand in that relationship, in just the same way that any accident insurance company would stand?

Mr. Futch: Yes, sir.

Mr. Sheean: The railroad company would not be relieved in any way from paying, if they were by law obliged to pay, by the fact that the man had carried an accident insurance policy?

Mr. Futch: That is true.

Mr. Sheean: So, also, I take it, Mr. Futch, during all this period of time you know that both the laws, the Employers' Liability law and the Workmen's Compensation law, are gradually becoming more and more favorable to all classes of employes?

Mr. Futch: Particularly in train service.

Mr. Sheean: Particularly in train service?

Mr. Futch: Yes.

Mr. Sheean: And particularly in the branch of service in which the engineers and firemen and trainmen operate?

Mr. Futch: Yes, sir. Unfortunately, though, that is not as a rule voluntary, on the part of the railroad companies.

Mr. Sheean: No, and the fact that the railroad companies a few years ago endeavored to co-operate in the enactment of a national workmen's compensation act, elicited, with some men at least, objection, did it not? What was the attitude of your organization as to the passage of a workmen's compensation act?

Mr. Futch: I will have to refer you to the Grand Chief for an answer to that question, Mr. Stone.

Mr. Stone: I should say it was almost unanimously adopted in a convention of 860 delegates.

Mr Sheean: The passage of a workmen's compensation act?

Mr. Stone: The bill that was then before Congress.

Mr. Sheean: And that was a bill that also was urged by representatives of railroad companies?

Mr. Stone: Yes, in a large extent.

Mr. Sheean: Yes.

Mr. Stone: I might add, if I might be permitted to explain, that it was defeated by a few ambulance chasing lawyers, and their friends.

Mr. Sheean: So that, Mr. Futch, the question of your liability under your accident policies, would in no manner be influenced, or affected, by any passage of other laws?

Mr. Futch: No, sir.

Mr. Sheean: That would be supplemental insurance and would continue in just the same way?

Mr. Futch: Just the same, yes, sir. We have this restriction, that we will not issue to an applicant accident insurance for weekly indemnity, added to whatever he may already have, to exceed three-fourths of his average weekly income; but that would have nothing to do with whatever compensation he might receive for an accidental injury from his employer.

The Chairman: Have you any information in your department as to the average age of engineers at the time they enter the service of the company?

Mr. Futch: No, sir.

The Chairman: You have nothing of that kind?

Mr. Futch: No, sir.

The Chairman: I presume you will be able to give us something on that, will you not, Mr. Stone?

Mr. Stone: I haven't it here, Mr. Chairman. I can get it, however. We gave it in 1910, I think, in our report to the convention. I haven't a convention report here, but I can get it for you and will be glad to supply it.

The Chairman: Yes.

Mr. Futch: I will say this, Mr. Chairman, along that line; this list I have right here commenced back in 1893.

The Chairman: Yes.

Mr. Futch: It commences, of course, at the age of 21; we don't have any members under 21 years of age. Taking it for granted that a very large percentage of engineers came into the Brotherhood at the earliest possible time they could, you might form a fair conclusion as to the ages at which they entered the company's service.

The Chairman: I had supposed that perhaps when one desired to take insurance, that among other things in his application he was required to state his age.

Mr. Futch: We have their ages, but that would not be any positive evidence as to the time he entered the service of the company as a locomotive engineer.

The Chairman: But, assuming that they are required, or have been required since 1890 to take this insurance, I thought it would be an easy matter, or rather not difficult to ascertain it.

Mr. Stone: We can work it out and will be glad to do it.

Mr. Futch: Of course, you understand, the ages we would give at which they took out the insurance, as I have stated, would not be positive evidence that they entered the service of the companies as a locomotive engineer at that time.

The Chairman: I understand that. All I desired was an approximate estimate, as near as you could make it.

Mr. Sheean: Mr. Futch, in view of this distinction you have just made, which I think is absolutely sound, that the age that you would furnish would be no evidence, or no positive evidence of the time he entered the service of the company—

Mr. Futch: It would not.

Mr. Sheean (continuing): —so, also, it would be no posi-

tive evidence of the length of service with that company, and your deduction of 11.3 years, that 11.3 years is, as I think you stated, simply the average of his insured life in your organization?

Mr. Futch: That is correct.

Mr. Sheean: And for the reason stated, as not showing his length of railroad service, or his age at the time he entered railroad service, so, too, it only purports to show the average length of time that those who have died have carried insurance in your organization?

Mr. Futch: That is correct.

Mr. Sheean: That is all.

The Chairman: Anything further, Mr. Stone?

RE-DIRECT EXAMINATION.

Mr. Stone: Yes, just a question or two: Coming back to that question of accident insurance, I believe you stated to Mr. Sheean that the payment of the weekly indemnity fund accident insurance was paid without regard to whether or not the railroad company had also paid for the same injuries?

Mr. Futch: Yes, sir.

Mr. Stone: Is it not a fact that the percentage is very small, where they pay for those injuries?

Mr. Futch: Unless compelled to by a court of last resort.

Mr. Stone: Is it not also a fact that on nearly all of these railroad companies there are two or three of the old line accident insurance companies doing a big business?

Mr. Futch: It is a fact, yes, sir.

Mr. Stone: I saw a smile go around when I spoke of the ambulance chasing lawyer; I did not mean that in any criticism of the professional lawyer, but is it not a fact that when one of our men is injured, that in many cases the solicitor for some law firm which makes a specialty of personal injury claims will beat the ambulance to the house?

Mr. Futch: That is true.

Mr. Stone: They are there waiting when they drive up with the injured man and wanting his case?

Mr. Futch: Yes, sir.

Mr. Stone: Is it not a fact also where they have these

relief associations that they make a man sign his life away in order to carry his relief?

Mr. Futch: Yes.

Mr. Stone: I believe you have a photographic copy of this standard relief application, and I would like to read it in the record, Mr. Chairman: If there is any question about it, we will produce the original. The camera does not lie. This is the new relief of the Baltimore & Ohio and the Baltimore & Ohio Chicago Terminal. They thought the engineer was getting too much money, so they increased his insurance that he had to take out, regardless of whether he wanted to or not, he had to take some more. This is the form, and this is one of a recent date; it is November, 1914.

"I *Further Agree* that this application, when accepted by the Superintendent, shall constitute a contract between myself and the said Company, as a condition of my employment by the Company, governed in its construction and effect by the laws of the State of Maryland and as such be an irrevocable power and authority to said Company to appropriate the above amounts from my wages and apply the same as aforesaid, and shall constitute an appropriation and assignment in advance to the said Company, in trust for the purposes of the Relief Feature, of such portions of my wages, which assignment shall have precedence over any other assignment by me of my wages or of any claim upon them on account of liabilities incurred by me.

"I *Further Agree* that in consideration of the contributions of said Company to the Relief Department, and of the guarantee by it of the payments of the benefits aforesaid, the acceptance of benefits from the said Relief Department for injury or death, shall operate as a release of all claims against said Company or any company owning or operating its branches or divisions, or any company over whose railroad, right of way or property the said The Baltimore & Ohio Railroad Company shall have the right to run or operate its engines or cars or send its employes in the performance of their duty, for damages by reason of such injury or death," and so forth.

That is how they protect themselves against paying for the wreckage. I think that is standard.

I also understand, Mr. Chairman, if I might be allowed to

explain, that that won't hold in the Supreme Court for a minute when you get there; but, unfortunately, the widow with two or three little children clinging around her skirts, when the wage earner is dead, is not in any position to law a railroad company, and she makes an adjustment with the claim agent the best she can. There isn't any question but what that has been the means of saving these companies thousands, and perhaps millions of dollars for wreckage that they should have paid for. And, they compel the men to pay for it at about three prices besides.

That is all, Mr. Futch, unless the other side wants to ask you some more questions.

Mr. Sheean: That is all.

(Witness excused.)

DR. W. B. CORY was called as a witness and, having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Carter: State your name.

Dr. Cory: W. B. Cory.

Mr. Carter: Your residence?

Dr. Cory: Peoria, Illinois.

Mr. Carter: Your occupation?

Dr. Cory: General medical examiner of the Brotherhood of Locomotive Firemen and Enginemen.

Mr. Carter: How long have you served in that capacity?

Dr. Cory: Since January 3rd, 1907.

Mr. Carter: Doctor, have you made any special research with regard to the hazard of occupation, both as to hazard and as to occupational diseases of engineers and firemen?

Dr. Cory: I have.

Mr. Carter: Do you identify that as a specially prepared statement, the result of your investigation?

Dr. Cory: This is one of the statements.

Mr. Carter: You identify this as the statement?

Dr. Cory: Yes, sir.

Mr. Carter: Mr. Chairman and gentlemen, we desire to introduce this as Exhibit number 45.

(The document, so offered and identified, was received in

evidence and thereupon marked "Employes' Exhibit No. 45, January 14, 1915.")

Mr. Carter: Doctor, in your own manner, express your opinions of the effect of light and heat upon the eyesight.

Dr. Cory: It has long been known to members of the medical profession, that looking at an eclipse of the sun without proper smoked glasses, caused a form of blindness known as solar retinitis, or eclipse blindness; also that mountain climbers in the Alpine region of Europe, and in the Polar regions of the world, suffered from a form of blindness similar to eclipse blindness, known as snow blindness; also that with the advent of electric lights added another similar conditon known as electric ophthalmia, or electric light blindness; also that men engaged in the work of glass blowing, puddlers in foundries, and stokers, were subjected with uncommon frequency to cataracts.

After becoming medical examiner for the Brotherhood, I noticed that a similar condition was to be found among the records of Locomotive Firemen, and made an investigation of the literature, to try and ascertain if possible the reason. To that end, and in confirmation of the opinion that I express, that heat and light of a fire box do have a deleterious effect upon the eyes of firemen, I have appended in this exhibit the opinions expressed in the text books of various American and European authors, and I have endeavored to go into the classical literature that appeared in the periodical journals from time to time. That matter is set forth in the first 26 pages of this exhibit.

While the experimental work that has been done in recent years is somewhat contradictory as to just exactly what portion of bright light affects the different portions of the eye, still the opinion of these writers is that bright light does have a deleterious effect on the human eye.

Speaking of bright light, it is well to remember that it is made up of a composite congeries of allied physical conditions, meaning that we have a thermal effect, a luminous effect and a chemical effect. Those are all similar physical conditions, that vary one from the other only in length of vibration and rapidity of vibration in the ether.

It is pretty generally conceded that the ultra violet ray, which is the one from which we have the short and rapid vi-

bration, affects the external portion of the eye, and to some extent the crystalline lens. It is also pretty generally conceded that the heat ray, while it is pretty generally absorbed by the aqueous humor of the eye, that portion of the eye that lies between the cornea of the eye and the crystalline lens, filters out a portion of the heat ray, nevertheless, certain of these heat rays do reach the crystalline lens and are claimed by many to be the cause of cataract in puddlers, stokers and glass blowers. After the question was experimentally investigated by Shantz, Stockheusen, Widmark, Hess and others, there was an opinion expressed that the retina or back part of the eye was mainly affected by the luminous ray of light; that perhaps very few of the chemical or thermic rays reached this portion of the eye. From my experience as a medical examiner, in personally examining not only the records of our office but the applicants who apply for allowances of their disability in the field, it is my opinion that the heat and light of the fire box does affect the eyes of locomotive firemen.

Mr. Carter: Do you care to quote from any writer that you here present as confirmatory authority?

Dr. Cory: They are all confirmatory of what I said said, in the main. The portion that occurs in black type, under the different headings, are on that point. Turning to page 5. Dr. Widmark's "Injuries to Eye," where he speaks of the cause, "Etiology. The influence of the sun, and intense heat and light, is injurious to sight and causes cataract. Hirschberg said there is an etiologic connection between cataract formation and occupations, entailing exposure to intense heat. Of thirty men employed as glass blowers, but five had reached the age of forty years, and all of them had developed glass-blowers' cataract."

This is expressed by Theobald, Norris, Ball, Adams, De Schweinitz, Parsons, Swanzy, Fuchs, Jackson, Fox, and many others.

Mr. Carter: Are all of these writers that you have quoted eminent authorities upon this subject?

Dr. Cory: They have written text books and many of them are teachers in the colleges of Europe and America.

Mr. Carter: Prominent ophthalmologists?

Dr. Cory: I would so take it. Dr. Fuchs, in his last text book on ophthalmology, has given a resume of the experimental

work. That occurs on page 7, to the top of page 10. Then there are two magazine articles dealing with the experimental work. One is by Dr. W. Halliburton McMullen, who was assistant surgeon to the Royal Westminster Ophthalmic Hospital. That is to be found on pages 11 to 16. Then Dr. J. Herbert Parsons, surgeon of the Royal London Ophthalmic Hospital and assistant opthalmic surgeon to the University Hospital of London. They take up this experimental work that I alluded to, and Dr. Parsons gives the result of his own personal experiments. I might add that Dr. Parsons, in conjunction with Mr. Nettleship and Mr. Gunn, made an investigation of the industry of glass blowing in England, at the factories at St. Helens, Gateshead, and I forget the other place, and reported their findings, which are on page 23 of this report. The experimental work is, as I said, somewhat at variance, but the consensus of opinion is about as I have stated it, and I think, if the Board cares to read these statements, they will find the proof ample.

Mr. Carter: Is there any similarity between the exposure of the eye of the glass blower to that of the locomotive firemen?

Dr. Cory: There is. These investigators of the glass blowers' occupation found that the left eye, which was nearest the molten mass, was most often affected, and peculiarly it has been my experience to find in cataract, the left eye of firemen, which is closer to the fire box, is more often affected.

Mr. Carter: The nose partially shields the right eye of the fireman firing, from the fire box?

Dr. Cory: Possibly. The rays would not strike the eye so directly and possibly the heat would not be so intense and would not affect it so much.

Mr. Carter: Do you know the intensity of the light and heat from a glass blower's furnace, as compared with that of a locomotive fire box?

Dr. Cory: Where the silica is melted, it is in the neighborhood of 2,000 degrees, but where the glass is taken from the furnace it is about 670 to 110 degrees Centigrade; it varies in that limit.

Mr. Carter: Do you know anything about the temperature of the fire box; that is, the heat radiated from the fire box, say the distance of a man's face from the fire box?

Dr. Cory: I would say it would be my opinion that the

heat which emanates from the fire box would be greater than the heat emanating from a glass foundry.

Mr. Carter: About what is the distance of a fireman's face to the molten coal, or the heat at the highest stage of combustion, when he is firing an ordinary locomotive?

Dr. Cory: I imagine he could get his face very close to the fire door, two or three feet, or four feet.

Mr. Carter: Probably not more than four feet away?

Dr. Cory: That is from the fire-box door. Now, if the temperature is the same at the fire-box door as it is at other places in the fire box, perhaps the fire box would have three or four times the heat that the glass furnace would have at place metal is taken from it.

Mr. Carter: Not only the heat, but the light would be much more intense, is that not true?

Dr. Cory: No, not for light. It is for heat.

Mr. Carter: Where the glass blower works at this metal, I mean to say at this molten glass, is the light as intense in his face as it is in the face of the fireman?

Dr. Cory: I think the light of a glass blower's furnace is less intense. It was worked out at the investigation in England that the light was about 540 lux, that is 540 candle power.

Mr. Carter: Have you had any personal experience in dealing with the effect of intense light upon the eye, that is beyond the question of theoretical opinion?

Dr. Cory: Yes, sir. I have investigated a great many cases of optic atrophy or inflammation of the optic nerve, where you could absolutely rule out venereal disease, the excessive use of alcohol and tobacco; where there was no other explanation for the gradual blindness or failure of the optic nerve than the effect of heat and light of the fire box upon the eye.

These particular cases were firemen who had fired fast freight runs at night and followed their engine with considerable regularity.

Mr. Carter: At night is the effect of sudden light much more severe than in the day time?

Dr. Cory: I think the effect of the fire box at night is more severe than in day, because the contrast is greater.

Mr. Carter: Is not the iris much more expanded in the dark than it would be in the day time?

Dr. Cory: Oh, yes.

Mr. Carter: Therefore, ordinarily the eye naturally assumes a position to receive the greatest amount of light. Isn't that true?

Dr. Cory: The pupil at night is widely dilated. The iris automatically opens and closes to let a proper volume of light into the eye, and when a fireman is working at night he looks into the fire box and the pupil is contracted down. When he looks for a signal or the condition of his machinery that he is working with, gradually the dilation takes place again.

There is a considerable dazzling in many people who follow these runs. And I have found another thing, that where they look intently at the fire box, squinting at their fire, as it were, as they tell me, to pick out the bright spots, there appears to be in the central field of vision what we call a scotoma. It is an area blindness. It may be negative or positive. In many cases it is a positive area blindness that persists.

Mr. Carter: Do you believe it necessary that for a fireman to properly fire a locomotive he should constantly and carefully examine all portions of the fuel during the process of combustion?

Dr. Cory: On questioning these firemen, I am told it is their habit to continually watch for bright spots in the fire, as at that point the combustion is greater, and it needs the application of fuel to keep the engine steaming.

Mr. Carter: Is this in accordance with instructions upon the subject, where firemen are taught the principles of combustion and how properly to fire locomotives?

Dr. Cory: I don't know what they are taught.

Mr. Carter: Are they not taught to avoid banks in a fire such as that?

Dr. Cory: I suppose they would be taught that by practical experience.

Mr. Carter: The fact remains, however, that the firemen are required to watch the fire?

Dr. Cory: Exactly.

Mr. Carter: It is a part of their duty?

Dr. Cory: Exactly.

Mr. Carter: Then is it your opinion, Doctor, that there is a particular hazard to the eyesight of a locomotive fireman?

Dr. Cory: It is.

Mr. Carter: Do you think that it is marked?

Dr. Cory: Yes. When you take into consideration the cases already referred to, and then add to these those that have lost their eyesight by being hit by pieces of broken water glasses, pieces of lubricator glasses—

Mr. Carter: I refer, Doctor, only to the occupational disease, not to any of these.

Dr. Cory: I think that that is a hazard of occupation, as well as the effect of heat and light on their—

Mr. Carter: I know, but I will get to that directly, if you will permit me to do so. I asked you if there was a particular hazard in the occupation of locomotive firemen because of cataract and other eye diseases, from the intense light and heat?

Dr. Cory: It is my opinion that there is.

Mr. Carter: Supposing, Doctor, after years of service the fireman's eye becomes affected, would he not be relieved from service as a locomotive fireman before his claim or his condition had become so serious as to require your attention?

Dr. Cory: He is examined, I understand, every year, and just as soon as he falls below the company's standard he is removed from the service.

Mr. Carter: That removal from service would probably change his occupation, wouldn't it?

Dr. Cory: If the company does not provide him occupation, it compels him to leave railroad service and engage in other service, such as a clerk, or a common laborer or anything.

Mr. Carter: Then if a claim was made to the Board by a man because of optic atrophy or cataract, who was employed as a clerk, he would really be paid for a disability that had had its origin, in all probability, while he served as locomotive fireman. Isn't that true?

Dr. Cory: It might in some cases, but not in all cases.

Mr. Carter: In those cases that are due to the light and heat?

Dr. Cory: Then it would be true.

Mr. Carter: Then it would be true. Then if it was shown yesterday by Mr. Hawley that these claims were paid to other than locomotive engineers and firemen, it would not mean nec-

essarily that the injury which resulted in the payment of claim was other than railroad injuries, would it?

Dr. Cory: It could very properly be charged to railroad injuries, even though the man was not engaged in railroad service at the time we paid the claim.

Mr. Carter: Does your observation lead you to believe that practically all engineers and firemen whose eyes become affected seriously do leave the service of railroads and assume other occupations before their claims are paid?

Dr. Cory: Not altogether. I have known of several instances, where the railroads, while they have taken the men out of engine service, have given them other employment.

Mr. Carter: Well, I perhaps did not express my intention. I refer to that employment known as engineers and firemen and hostlers.

Dr. Cory: Now then, I know of many cases where engineers and firemen have been taken out of road service and even out of switching service and allowed to hostle.

Mr. Carter: Placed in hostler service?

Dr. Cory: Yes.

Mr. Carter: Because it was not believed that—

Dr. Cory: There was a hazard to the traveling public, and they were taken out of service and given service around the roundhouse. Some men given day labor around roundhouses. Some have been given jobs in storerooms, where the remuneration was much less than that they would make on their engine.

Mr. Carter: Possibly some of them flagged crossings, and such as that?

Dr. Cory: Yes, we have several instances where they have been given the job of about $35 a month flagging a crossing.

Mr. Carter: But their opportunities for advancement, either in preferred runs or in promotion to better positions, have all been lost? Isn't that true?

Dr. Cory: It has been ended when they acquire defective eyesight.

Mr. Carter: This also is a hazard of financial loss as well as physical injury, is it not?

Dr. Cory: Yes.

Mr. Carter: I note you next take up another subject.

Dr. Cory: I was struck by the recurring frequency of vari-

ous heart and vascular diseases, renal diseases and nervous diseases among the firemen.

Mr. Carter: Now, Doctor, before you go on, we will presume that possibly some of the members of the Board are not familiar with medical terms. Will you explain what vascular diseases and renal diseases are?

Dr. Cory: Vascular disease is a term used to apply to diseases of the heart, arteries and veins.

Mr. Carter: Louder, please. I am interested myself.

Dr. Cory: Renal disease is kidney disease. Nervous disease is disease of the nervous system.

Mr. Carter: What is your opinion with regard to those diseases? Do you think to a certain extent they may be termed occupational diseases, so far as engineers and firemen are concerned?

Dr. Cory: More particularly for firemen. It is my opinion that the service as a locomotive fireman more materially ages the man, and on account of the service he has, hardening of the arteries, and also aneurism develops. He develops Bright's disease, which is a kidney disease; he develops valvular disease of the heart, hardening of the arch of the aorta—that is the beginning of the arterial system, and other arteries. That there is something inherent in the service as firemen that causes the disease in many cases to develop simultaneously in the arteries, the heart and the kidneys.

In other cases maybe the kidney exhibits its weakness first to this influence, and later is followed by diseases of the heart and arteries. Maybe in other instances it is the heart that first exhibits symptoms, to be followed later by the kidney and arterial system. And maybe first it is the arterial system, to be followed later by the heart and kidney.

It is amply expressed by Dr. McCrae, on page 32. He takes the form of the triangle and writes "heart, vessels and kidney" at the angles, and then he says, you can rotate the triangle any way you please, and the picture of the disease which you have after four to six or eight months is the same, no matter which organ was primarily affected.

The service as locomotive fireman submits the body to a long continual overstrain. The long continual overstrain results in cardiac dilatation, in hardening of the arteries; in some

instances it produces aneurism; in some instances it produces Bright's disease of the kidney; and in some instances it produces valvular disease and acute dilatation of the heart.

The statements that substantiate this opinion are taken from the text books and from the periodical literature, and are given on pages 27 to 40, after the same manner as I dealt with eyesight.

Mr. Carter: Then you attribute the excessive labor of a locomotive fireman as the cause of these diseases?

Dr. Cory: I do.

Mr. Carter: Do those authorities which you quote here bear out that theory?

Dr. Cory: Yes, sir, they do.

Mr. Carter: Do you care to quote from any special authorities, in the event of the Board not having the opportunity to read all these exhibits before the finish of the Arbitration?

Dr. Cory: In producing a chronic disease of the valves of the heart (page 33), quoting from Osler's "Practice of Medicine:"

"A very important factor, particularly in the case of the aortic valves, is the strain of prolonged and heavy muscular exertion. In no other way can be explained the occurrence of so many cases of sclerosis of the aortic valves in young and middle-aged men whose occupations necessitate the overuse of the muscles."

Dr. Clifford Allbutt expresses the same opinion, and Von Leyden sums up the effects of overstrain on the cardiovascular system (page 29), as follows: First, Atheroma of the Aorta. That means hardening of the arteries. Arteriosclerosis of the whole system. That is the same condition carried further along the branches. Rupture and insufficiency of the Aortic Valves, and also Pure Cardiac Failure, meaning a failure of the muscular system.

Now, that heart disease is a factor in the cause of the production of kidney disease is set forth on page 36, "The Relation of Heart Disease to Kidney Disease," quoting from Tyson, Professor of Medicine at the University of Pennsylvania. In his book, on page 828, he says:

"Renal disease associated with Hypertrophy of the left Ventricle without Valvular Disease. Modern studies have made it quite certain that this form of combined heart and kidney disease may originate in two ways: (a) The heart affection may be secondary to the kidney disease as its direct consequence; or (b) both conditions may result from one and the same cause—viz., arteriosclerosis."

I think, Mr. Carter, the proof is ample of the statement that I made, of the opinion I hold.

Mr. Carter: Then such disease as kidney disease is indirectly, in many instances, the result of the excessive labor of the fireman, through the medium of the vascular disease?

Dr. Cory: Exactly, and in this connection kidney disease is many times caused by exposure to wet and cold, a combination of the two.

Mr. Carter: If it can be shown or has been shown that probably a locomotive fireman is required to labor longer and harder than perhaps any other class of men, would they be more susceptible then to these diseases which you have just enumerated than others?

Dr. Cory: Yes, sir, they would acquire these diseases at an earlier age and in larger number.

Mr. Carter: Then to that extent it might be said that partially they are vocational diseases?

Dr. Cory: To that extent they are vocational for firemen.

Mr. Carter: And you think that this excessive labor has perhaps led to an increase in the number of these disability claims paid by the Brotherhood of Locomotive Firemen and Enginemen?

Dr. Cory: Undoubtedly.

Mr. Carter: Let us assume that a locomotive fireman or engineman—I believe this is all firemen we are now discussing—let us presume that a locomotive fireman should develop marked symptoms of some of these diseases, would it be at all probable that he would remain in the service as an engineer or fireman?

Dr. Cory: No, sir.

Mr. Carter: Yet he perhaps would not die immediately?

Dr. Cory: No, sir.

Mr. Carter: Is it usual, when a man finds himself unable to follow one occupation, that he naturally seeks another occupation that he can follow?

Dr. Cory: If he has to follow any occupation to live, it is.

Mr. Carter: When you examine these men who have left railroad service—many of them on account of these afflictions, don't you generally find them in some other lighter service?

Dr. Cory: If the affliction is blindness or amputation.

Mr. Carter: I am referring to these vascular diseases.

Dr. Cory: No, they are absolutely unable to work.

Mr. Carter: You think that the—

Dr. Cory: Our law requires them to be totally and permanently incapacitated from the performance of any and all manual labor.

Mr. Carter: Ah, you don't understand my question. I said after these diseases had progressed to the extent that they can no longer serve as locomotive engineers and firemen, is it not often the case that they secure other employment less hazardous?

Dr. Cory: Oh, yes.

Mr. Carter: And when the claim is actually made they are no longer engineers or firemen?

Dr. Cory: No, sir, they are not employed in any capacity.

Mr. Carter: Well, when claims of this character are paid, Doctor, and you find the men have left railroad service and are perhaps working at some lighter labor that they can follow, it would be classed, as was shown yesterday by Mr. Hawley, as a hazard of other occupations. Do you believe that that hazard was properly assigned?

Dr. Cory: No, I do not. I think that many of the disabilities assigned to other causes or other occupations might properly be attributed to railroad service.

Mr. Carter: Do you desire to say anything else in regard to that last subject, up to page 40?

Dr. Cory: In that connection I have one thing that I would like to add, and that is that the strain of firing locomotives seems to reduce the vitality of the fireman or his natural resistance to disease to such a point that he falls a more easy prey to zymotic diseases, and I mean by that the diseases that

are caused by micro-organisms, where a specific disease is caused by a specific germ.

Mr. Carter: Describe some of those diseases.

Dr. Cory: Pneumonia, typhoid fever, tuberculosis, and many others, but those are the common ones that I presume everybody is familiar with.

Mr. Carter: You think, then, that the physical strain reduces the vitality of the fireman to the extent he is susceptible to these things more than perhaps others who are not subjected to these peculiar strains?

Dr. Cory: Not only that, but more than he would be if he were not in that vocation.

Mr. Carter: Do you think the water that the locomotive firemen and engineers drink on the road has something to do sometimes with typhoid fever, or something of that kind?

Dr. Cory: It might bring the active agent of the disease directly to his system.

Mr. Carter: Do you think any municipality of importance would permit a water company to supply to its citizens or inhabitants the water that locomotive engineers and firemen are often required to drink? I do not say on all railroads, but on many railroads. Some railroads may provide Hydrox, with ice in it; others do not.

Dr. Cory: I believe that many times the conditions surrounding the sanitation of the icebox and the coolers are not of the best.

Mr. Carter: Well, suppose there are no iceboxes and coolers, and they are drinking out of the tanks along the road—water tanks?

Dr. Cory: A municipal corporation probably would not permit the same water to be used in consumption by citizens that the railroads use in their tanks.

Mr. Carter: That is the point I wanted to bring out. Now, with regard to exposure to excessive cold and alternating with excessive heat. In the latter, the fireman becomes wet with sweat and then suddenly being exposed to the intense cold, would that lead to diseases that might be considered, to a certain extent, occupational?

Dr. Cory: It is one of the exciting causes of Bright's dis-

ease, and to that extent would be occupational for firemen who were thus exposed.

Dr. Carter: But, Doctor, notwithstanding all of these tendencies, do you find that diseases have some hard subject to contend with when they tackle a fireman?

Dr. Cory: Personally I would consider a locomotive fireman, when he started out to work for a railroad company, the cream of American manhood.

Mr. Carter: The bugs don't have much of a chance with him?

Dr. Cory: No. He is carefully selected by the railroad company when he engages in the service, and when he joins the Brotherhood he is again submitted to a rigid examination, and I exercise a very careful selection of risks.

Mr. Carter: I won't ask you if you are familiar with applications for employment in the way of medical examination, but upon the general information we have of applications for employment, the medical examinations of applicants for employment are very rigid. Do you believe that this careful selection of what you call "the cream of American manhood" tends to reduce the diseases that you have enumerated?

Dr. Cory: Oh, yes. If these men were selected indiscriminately the effect would be much greater than it is.

Mr. Carter: Do you think that the high character of the physical condition of the men who are selected by the railroads to fire locomotives may overcome the tendency that we have shown here through occupational diseases or hazards?

Dr. Cory: The tendency is there, but the individual, having a strong constitution and great immunity, wards off this condition.

Mr. Carter: Then, is it not possible that it might be shown that, so far as tuberculosis, Bright's disease of the kidneys, or other similar diseases that you, I believe, term zymotic diseases, is it not a fact that probably it might show a lower percentage of the members of the Brotherhood of Locomotive Firemen and Enginemen than in the usual walks of life?

Dr. Cory: No, I think it shows higher.

Mr. Carter: I say, would it not be possible on account of this. I am not saying that it is. On account of this great physical fitness of the men who fire locomotives in the beginning?

Dr. Cory: If you will take into consideration the fact that we would naturally expect—(other things being equal) a fireman should have one of the very best of mortuary experiences from the fact that to a large extent he is American, or born of American parents; that he is twice subjected to a rigid examination; a careful selection of health risk is exercised upon him twice; and his average age is at the time of death and disability about 32 years; his average age at the time we get him is about 25; his average age at the time he enters the service is something less than 25; in that class of individuals you would expect to have the very best kind of mortuary statistics, and the fact that you do not get that expectancy table is due, in my opinion, to the hazard of this occupation.

Mr. Carter: Is that all, Doctor, on that subject? I notice you publish a table on page 41. Will you explain that? It goes through, I believe, to page 44.

Dr. Cory: That table takes up the claims paid by the Brotherhood of Locomotive Firemen from its beginning as an insurance organization down to and including all claims paid up to the end of the year 1913. The name of the claimant is given; the number of his claim as it appears in the Grand Lodge records; the number of the lodge to which he belongs; the cause of his blindness as stated in the claim papers; and then such detailed information as the papers contain is given for every claim for blindness that the Brotherhood of Locomotive Firemen has paid.

Mr. Carter: I note there is a great increase in the number along about 1909. To what do you attribute that peculiar feature of this table?

Dr. Cory: Prior to September 22, 1908, at 4:40 P. M., we paid only for total blindness in both eyes. At that minute, the Columbus Convention enacted a law, that they would then and thereafter pay for a total blindness that was permanent, in one eye alone.

The experience of the Society from 1909 on is reflected for one-eyed blindness instead of total blindness in both eyes, as had been the requirement heretofore.

Mr. Carter: Let us take the year 1912, appearing on page 43. I have tried to work out some calculations here. Will you advise about how many of those claims paid in 1912 that possi-

bly were the result of the intense light and heat? I have eight here.

Dr. Cory: Well, that would be about—

Mr. Carter: I will read them and see if you agree with me: "Ottie L. Strolle, Optic Atrophy, due to heat and light of fire box." Now, was that the actual language of the papers filed in the case?

Dr. Cory: Yes, sir, and that was also the opinion of the doctors on the case.

Mr. Carter: That is one. "Gus Johnson, Detachment of Retina."

"James H. Grant, Optic Atrophy; no particulars given."

"Harry B. Baker, Central Choroiditis." I can't pronounce that.

Dr. Cory: Choroiditis, with hemorrhage.

Mr. Carter: I won't ask you to pronounce it, or attempt to pronounce it myself, but it was something.

Dr. Cory: Central Choroiditis, with hemorrhage.

Mr. Carter: Now, "Lawrence Callahan, Optic Atrophy."

"Brookman, Optic Atrophy."

"Penrose, Detached Retina, cause unknown."

"McLaughlin, Soft Cataracts." I find altogether eight. Do you think that a considerable proportion of that eight might be due to light and heat?

Dr. Cory: My recollection is that all of them were very properly attributed to that cause.

Mr. Carter: That would be about 13½ per cent of the total fifty-nine claims paid for blindness in 1912, would it not?

Dr. Cory: Just about 13½, I take it.

Mr. Carter: I note that I have counted here thirty-five cases of blindness due to railroad accidents, such as hit in eye by bursting lubricator glass. In fact, I find that thirteen of the claims you list as being paid for blindness in 1912, were due to either bursting lubricator glass, or water glass. Would you consider that a peculiar occupational hazard?

Dr. Cory: For locomotive firemen, yes, sir.

Mr. Carter: It also might affect engineers to a great extent.

Dr. Cory: Yes; for engineers also.

Mr. Carter: The water glass is sometimes on the engineer's side?

Dr. Cory: Yes.

Mr. Carter: I find there are only sixteen "other causes." I won't ask you to verify my computations, but I find that of the fifty-nine cases, 13 per cent, you say, were probably due to light and heat, 35 per cent to railroad accidents, and 16 per cent to other causes.

Doctor, is it not possible that a man may have his eye injured to the extent that he would leave the service and in order to support his family accept any employment at all until such time as the Brotherhood paid his claim?

Dr. Cory: That is often the case.

Mr. Carter: And if you find a man whose eye was injured by the bursting of a water glass, or a lubricator glass, that is temporarily doing something else in order to support his family, you would not consider that a hazard of his other occupation, would you?

Dr. Cory: Certainly not.

Mr. Carter: It is the hazard of his occupation which he formerly followed?

Dr. Cory: I would consider it as a hazard of railway occupation.

Mr. Carter: Doctor, I notice in the next year, 1913, which appears on page 44, there are only thirty-four cases of blindness paid in 1913, against fifty-nine paid in 1912. That seems to be a great decrease, does it not, in one year's time?

Dr. Cory: It is.

Mr. Carter: To what do you attribute this decrease?

Dr. Cory: To two things: the use of the shields around lubricator glasses, and the fact that many of the men during that year left the service and went into other employment.

Mr. Carter: I find, Doctor, by counting from your own table here, that in 1912, there were thirteen cases of blindness because of the bursting of water glasses and lubricator glasses, while in 1913 there were only five cases. Are you familiar with the law known as the Locomotive Boiler Inspection Law?

Dr. Cory: Not to any great extent, except that it requires certain protection to be used on an engine, in the way of shielding glasses, water glasses and lubricator glasses.

Mr. Carter: You know that much is left to the judgment of the Department of Boiler Inspection, a subsidiary of the Interstate Commerce Commission?

Dr. Cory: I have been told that.

Mr. Carter: You do not know that these boiler inspectors have reported and insisted upon shields being placed upon these glasses?

Dr. Cory: I know that to be the fact, because I have made personal investigations.

Mr. Carter: Then it would appear that the application of that law has partially contributed to the decrease from thirteen cases of bursted lubricator and water glasses in 1912 to five cases in 1913?

Dr. Cory: Yes, sir, that is what I would attribute it to.

Mr. Carter: Then, if that is the result of that law, the earnestness with which the members of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen pressed the enactment of that law was based upon a reasonable cause, was it not?

Dr. Cory: I would so consider it.

Mr. Carter: I understood you to say that in 1913 a good many employes left the service that were in the service in 1912?

Dr. Cory: I did.

Mr. Carter: I think you will find, however, Doctor, that the year 1913 was quite a prosperous year; I think it was about December before we met the shock of the recent depression. If it could be shown, Doctor, that quite a large number of very large engines had been introduced in service in that year, where one engine displaced two engines, that would also tend to reduce the number, would it not?

Dr. Cory: To some extent.

Mr. Carter: Have you anything to say further upon the table that begins on page 41, in regard to blindness?

Dr. Cory: There are three or four cases that appear in the table where the dazzling of the fire box at night seems to have been responsible for the injury. The case of William C. Frew, of Lodge No. 49.

Mr. Carter: I want to call your attention particularly to the case of William C. Frew—you just read that, did you?

Dr. Cory: Yes.

Mr. Carter: Where it says he was hit in the eye by a piece of corrugated roof on car. Will you explain how that accident occurred and what he was doing?

Dr. Cory: My recollection is that he was an engineer running a night switch engine.

Mr. Carter: A night switch engine. Do you think perhaps he would now be running a switch engine with both eyes, instead of being out of the service with one eye, if he had been working days?

Dr. Cory: I could not say as to that.

Mr. Carter: Do you think he could have seen the car, instead of letting it knock his eye out?

Dr. Cory: More than likely he would have, if it had been daylight.

Mr. Carter: Do you know anything about the case personally?

Dr. Cory: I would have to testify from memory, and there are so many cases—

Mr. Carter: What would your memory of the case be?

Dr. Cory: That he was a locomotive engineer running an engine at night, and in looking for his signal, a piece of corrugated roof hit him.

Mr. Carter: He was switching, was he not?

Dr. Cory: That is my recollection.

Mr. Carter: Can you conceive of the case of a locomotive engineer running an engine in daylight, who stuck his head out of the window, so that the roof of a car would hit him in the eye?

Dr. Cory: No. I think those accidents would be mainly at night.

Mr. Carter: You think it is an accident peculiar to night work, in switching service?

Dr. Cory: I think so, in that case.

Mr. Carter: Turning there, in 1913, to the first case, of Arthur J. Hartman, hit in the eye by roofboard of car. Do you remember anything about that case?

Dr. Cory: He was running a night switch engine at Kansas City.

Mr. Carter: Night switch engine?

Dr. Cory: Yes, sir.

Mr. Carter: Hit in the eye by the roofboard of a car?

Dr. Cory: Yes, sir.

Mr. Carter: Do you think if it had been daylight he would have seen that roofboard sticking out?

Dr. Cory: More than likely.

Mr. Carter: Turning to the case of Oliver M. Brown, hit in the eye by metal strap. Do you remember about that case?

Dr. Cory: My recollection was that he was a fireman who put in a fire and got up and looked for a signal.

Mr. Carter: A switch engine fireman?

Dr. Cory: That is my recollection.

Mr. Carter: And he was hit by a metal strap?

Dr. Cory: Yes.

Mr. Carter: Would it not have been possible, if not probable, that if it had been a daylight job, he would have seen it, on a daylight job?

Dr. Cory: Very likely.

Mr. Carter: I find the case of Arthur W. Greifenstein, side swiped. Will you explain to the Board what "side swiped" means?

Dr. Cory: Why, cars on a siding, on the track next to the track where his engine was at work, did not clear.

Mr. Carter: Pushed out too far.

Dr. Cory: This accident happened at Crestline, Ohio. Greifenstein was a fireman who had put in a fire and hastily got up on his seat box and stuck his head out to get a signal of the switchman, and a car that did not clear hit him.

Mr. Carter: Now, we find, going back to and including Frew, there were forty-four cases of blindness on that page and the last page of the table, and I find that four, or 10 per cent, were due to the fact that engineers or firemen are unable to see obstructions at night in yards—four is not quite 10 per cent of forty-four. In this Arbitration, Engineers and Firemen are asking for a rate of two cents an hour higher while switching at nights, than while switching in days. Does not your table set forth the extra hazard of switching at night?

Dr. Cory: I don't know that the table sets it forth, but my personal recollection, from handling the disabilities in the field, would lead me to believe that the differential asked is not excessive at all.

Mr. Carter: There are four actual cases due to obstructions not seen at night?

Dr. Cory: Yes, sir.

Mr. Carter: In switching service?

Dr. Cory: Yes, sir.

Mr. Carter: Four is not quite 10 per cent of forty-four.

Dr. Cory: About one-eleventh.

Mr. Carter: Will you turn to page 45 and tell what you show there?

Dr. Cory: I show the experience of the Brotherhood from 1882 to 1913, giving the cause of every disability that the Brotherhood paid within those years.

Mr. Carter: I note, Doctor, in the latter part of the table, say beginning with 1892, 1894 or 1895 and so on, eight of these diseases are omitted. Will you explain why all of these diseases are not paid for now, under the laws of the Brotherhood, as disabilities?

Dr. Cory: Up until the time at which these diseases you refer to were omitted, we paid for total or permanent disability from any cause, as long as the disability was permanent or totally incapacitated him for manual labor. Then the law was changed and limited, and the law is now to pay for amputations at or above the wrist or ankle joint. We pay for total and permanent blindness in one or both eyes. We pay $50 a month to our consumption cases, in any stage of the disease.

Mr. Carter: That is only since the present law?

Dr. Cory: Yes. Then, for paralysis, locomotor ataxia, Bright's disease of the kidneys and uncompensated valvular disease of the heart, when the disease has progressed to such an extent that they cannot perform any manual labor whatever, we pay the total amount of the policy for the disability.

Mr. Carter: Will you turn to page 46? Does this diagram graphically set forth the information contained in the table on page 45?

Dr. Cory: Yes, sir, it does.

Mr. Carter: What does this long black line indicate?

Dr. Cory: You mean the first line?

Mr. Carter: Yes.

Dr. Cory: That shows the number of disabilities on account of amputation paid in thirty-two years.

Mr. Carter: 884?

Dr. Cory: Yes, sir.

Mr. Carter: I see you have a scale at the top of the page there. Does that indicate the number of claims paid, according to the length of the line?

Dr. Cory: Yes, sir.

Mr. Carter: Then, of all these disabilities, you show that 884 of them have been paid because of amputation?

Dr. Cory: Yes, sir.

Mr. Carter: It seems that amputation is a worse disease, with locomotive engineers and firemen, than consumption of the lungs?

Dr. Cory: Well, we have death from consumption as well as disability. Death is not represented here.

Mr. Carter: Isn't it a fact that under our laws most of the members secure payment for consumption of the lungs as a disability claim rather than a death claim?

Dr. Cory: No.

Mr. Carter: Some of them do not file their claims—they would be entitled to the money, however, if they filed them, would they not?

Dr. Cory: Yes, sir. I think if you take the deaths and the disabilities combined for consumption, you will find it ranks next to railroad accidents.

Mr. Carter: Where do we find that?

Dr. Cory: You will find that table on page 51.

Mr. Carter: That black line sticks out still longer on that page than the other line?

Dr. Cory: That is deaths due to railroad accidents represented there. This table on 51 is a combination of deaths and disabilities. On page 49 it is deaths alone.

Mr. Carter: Let us take page 46, where we started. Will you indicate which of these disabilities would be directly attributable to railroad accidents taking, of course, into consideration that men are liable to accident in any calling or in any walk of life?

Dr. Cory: I would say that it is my opinion that a large portion of the disabilities on account of amputation, a large portion of those on account of paralysis, a large portion of those on account of blindness and a large portion of those on account

of fractures and anchylosed joints, which are stiff joints, may properly be attributable to railroad service.

Mr. Carter: How about the vocation diseases that you show; to a certain extent would vocational diseases—that would apply to paralysis?

Dr. Cory: I have here stated it. Paralysis that would be attributable to railroad accidents, in my opinion, would be due to injury.

Mr. Carter: How about blindness; that might be due to injury or might be due to light and heat of the fire box?

Dr. Cory: Exactly.

Mr. Carter: I see you have 104 disabilities paid for Bright's disease?

Dr. Cory: Well, some of those might have been acquired in the service.

Mr. Carter: You show others here as zymotic diseases. I understand those are diseases where the microbes or the "bugs" get you, is that right, Doctor?

Dr. Cory: They are caused by micro-organisms, yes, sir.

Mr. Carter: How about the table on page 47?

Dr. Cory: That shows a graphic representation—you mean on page 49?

Mr. Carter: No, page 47.

Dr. Cory: 47 is only a part of the table.

Mr. Carter: The table begins on page 47.

Dr. Cory: And it ends on page 48.

Mr. Carter: Runs over two pages?

Dr. Cory: Yes. That is a similar statement of deaths for the same period that I stated the disabilities.

Mr. Carter: And this diagram—

Dr. Cory: Is a graphic representation of the table that appears on pages 47 and 48.

Mr. Carter: I think not.

Dr. Cory: I know it is.

Mr. Carter: You are right about that. What about these deaths from all causes?

Dr. Cory: Well, 4,258 are from railroad accidents in 32 years.

Mr. Carter: There are diseases which you have grouped

as zymotic diseases, typhoid fever, tuberculosis, pneumonia and other zymotic diseases?

Dr. Cory: Yes, sir.

Mr. Carter: Then you have some vascular diseases or diseases that have origin in vascular diseases, is that right?

Dr. Cory: Yes, sir.

Mr. Carter: What proportion of those do you think are due to some extent at least to the occupation of locomotive engineer and fireman?

Dr. Cory: I should not attempt to figure out the percentages. I believe, to a certain extent, the hard work required of the locomotive fireman today so depletes his vitality and reduces his natural immunity and resistance to disease, that he falls an easier and more ready prey to the action of micro-organisms. To that extent, a proportion of what we have sustained in death and disability losses might be attributed to railroad service. I could not attempt to figure out the percentage.

Mr. Carter: This long dark line at the top of the page that shows the deaths from railroad accidents, does not, in its entirety, show deaths that might also be indirectly caused by railroad occupation?

Dr. Cory: No, sir. That shows the actual deaths from accidents, where men were killed outright, with their boots on, you might say.

Mr. Carter: Yesterday, I believe it was, Mr. Hawley presented a statement here, and one of his statements appeared to be so sensational that it was seriously doubted. He stated in the ten-year period covered by his report that 47 per cent of all deaths were from railroad accidents. Now, being placed upon the defensive, I have been busy last evening, and I find that you report, in this 32-year period, 9,018 deaths from all causes.

Dr. Cory: Yes.

Mr. Carter: 4,258 from railroad accidents?

Dr. Cory: Yes, sir.

Mr. Carter: 4,760 from other causes?

Dr. Cory: Yes, sir.

Mr. Carter: I have performed a computation here and I find that you report for a period of 32 years that of all deaths 47.3 per cent are due to railroad accidents. There was no collusion between you and Mr. Hawley in this matter, was there?

Dr. Cory: Not at all.

Mr. Carter: Now, isn't it strange; isn't it a coincidence, that in the investigation of Mr. Hawley for a ten-year period he would find that 47 per cent of all death claims paid by this Brotherhood were due to railroad accidents, and you, in a research covering a period of 32 years, would find that 47.3 per cent of all death claims paid were caused by railroad accidents?

Dr. Cory: I think, Mr. Carter, that if you took any portion or all of your experience, that when you figured your percentage you would have substantially the same percentage, no matter what portion you figured, so that if Mr. Hawley took a ten-year period and stated it as 47 per cent, approximately, for that ten-year period, and my entire experience of the society is 47 per cent, and his was 47 per cent, I would think that would tend to show it did not make much difference where you took your section or whether you took all of it; that experience was much the same from year to year, in engine service.

Mr. Carter: I find on page 50 a table entitled "A summary of thirty-two years' experience as a mutual benefit society." Will you briefly explain what that table sets forth and shows?

Dr. Cory: That table sets forth the actual number of death claims and the actual number of disability claims, from all causes, that the Brotherhood has paid from 1882 to 1913, inclusive.

Mr. Carter: And the percentages?

Dr. Cory: It sets forth the death rate per thousand members exposed for each of the causes, and then it gives you a combined death rate; and then it sets forth the percentage of loss to beneficiary fund on account of these specific diseases. At the bottom it shows you the total number of membership exposed in the thirty-two years period.

Mr. Carter: I notice you have railroad accidents there, deaths, 4,258?

Dr. Cory: Yes.

Mr. Carter: Disability none. Where do you show the disabilities that arise from railroad accidents?

Dr. Cory: Part of them would be shown under amputations, part of them under blindness, and part of them under paralysis.

Mr. Carter: You do not attempt to segregate them in this table?

Dr. Cory: No, for disabilities I did not segregate them.

Mr. Carter: The disabilities you segregate by the ultimate affliction?

Dr. Cory: Yes, sir.

Mr. Carter: And not the cause?

Dr. Cory: Not the cause.

Mr. Carter: These totals here at the bottom of column 1, for instance, it shows the total number of deaths in thirty-two years, 9,018; and total disabilities—

Dr. Cory: 2,283. Total number of claims was 11,301. The death rate was 7.4114.

Mr. Carter: Per thousand?

Dr. Cory: For death per thousand members exposed. The disability rate was 1.8762. The combined death and disability rate was 9.2876.

Loss per cent on account of death was 79.78. On account of disability 20.20.

Mr. Carter: Total practically 100?

Dr. Cory: Well, there are .02 of 1 per cent that I have not accounted for.

Mr. Carter: Yes, the decimals are not carried out. This table on page 51 graphically sets forth the same information?

Dr. Cory: It is a graphic representation of the summary of our experience.

Mr. Carter: That black line at the top, due to railroad accidents, still sticks out as ever?

Dr. Cory: Yes, sir.

Mr. Carter: I see you have a table on page 52 entitled "Applicants Rejected." What is the purpose of that table?

Dr. Cory: That was the result of a curiosity of my own, to find out whether men were afflicted early in their railroad service. I took the experience that we had in applicants for membership, men who were rejected, men I refused to accept a risk upon, and tried to classify my reasons for refusal, and to see how much was directly attributable to service as enginemen. That is the table of the experience of the Society with non-beneficiary members.

Mr. Carter: Then about 1 per cent of these men who made application—

Dr. Cory: About 1.1 per cent.

Mr. Carter: 1.1 per cent?

Dr. Cory: Yes; were disabled between the time they entered the company's service, and the time they applied for membership in the Brotherhood.

Mr. Carter: Was that period of time usually very long?

Dr. Cory: It must be at least six months, because we required that much probation before a man is eligible. How much longer I could not say.

Mr. Carter: Is it not a fact that, as you have already stated, that most of these cases, or practically all of these cases, should be filtered out, or sifted out by the medical examiner of the railroads?

Dr. Cory: These men got by the medical examiner of the railroads, and had entered the service. These men represent that portion of the locomotive firemen who were sifted out on the second examination.

Mr. Carter: If it could be shown that the examination conducted by the railroads was very much more severe than that conducted by this Brotherhood, would you think then that it would indicate that these disabilities began to develop shortly after entering the service as firemen?

Dr. Cory: If it could be so shown, that would follow; but I do not know that it could be shown.

Mr. Carter: I understood that table set forth something of that kind.

Dr. Cory: The railroad companies have a rigid examination, and I have a rigid examination, too. I will state, Mr. Carter, that I believe firmly in an adequate supervision and a careful selection of insurance risks in this vocation, and to that end and complying with our laws, I have endeavored to make a rigid examination.

Mr. Carter: Have you found that remarkably few locomotive firemen in the early years of their service are debarred from membership in this Brotherhood because of physical disability?

Dr. Cory: The experience in thirteen years was that we had 178,905 applications and of this number 5,837 were rejected

for all causes; 2,452 were rejected on account of the physical disability of the applicant, and of the 2,452, 1,980 of those physical defects in my opinion were directly attributable to engine service.

Mr. Carter: What becomes of these men who make application for membership in the Brotherhood of Locomotive Firemen and Enginemen, and the beneficiary department of that organization, and are rejected by you?

Dr. Cory: They become non-beneficiary members of the Brotherhood, and are given a funeral benefit certificate only.

Mr. Carter: Do you think that our experience is that because of the high standard or high physical condition of the applicants, remarkably few men are rejected?

Dr. Cory: How is that?

Mr. Carter: Do you think that because of the class of men from which this organization draws its material, their high physical condition, that we have comparatively few rejections on account of physical conditions, compared with other organizations, or Old Line insurance companies?

Dr. Cory: Yes, our rate for rejection would be low on account of the class of risks we get.

Mr. Carter: It is not long, however, usually, after a fireman goes to work, before he usually makes application for membership in the organization, is that not true?

Dr. Cory: It is anywhere from six months up.

Mr. Carter: It is optional with him, however?

Dr. Cory: When he will make his application, yes, sir.

Mr. Carter: It is optional with him, however, is it not?

Dr. Cory: Yes, sir, it is optional with him to make his application when he sees fit.

Mr. Carter: I note you have a table on page 53. "Deaths, Disabilities and Rejections." What does this table show?

Dr. Cory: That is intended to show the hazard of the occupation as reflected in our statistics, for all firemen, whether they are beneficiary members or not.

Mr. Carter: I note you have here a horizontal line showing the membership the first of each year, and then the ratio loss per one thousand members per year.

Dr. Cory: Yes, sir; I endeavored to take the number ex-

posed, so far as we knew, and the percentage of loss attributable to engine service, and see how it varied from year to year.

Mr. Carter: You don't show any great decline here, do you?

Dr. Cory: No, and that table led me to believe that that experience was very much the same from year to year.

Mr. Carter: Let us take the last ten years and see how that runs. 1903 is eight to the thousand; 1904, nine to the thousand, omitting the fractions; 1905, eight to the thousand; 1906, eight to the thousand; 1907, nine to the thousand; 1908, six to the thousand; 1909, seven to the thousand; 1910, ten to the thousand; 1911, nine to the thousand; 1912, ten to the thousand; 1913, eight to the thousand. Is that right?

Dr. Cory: Yes, sir.

Mr. Carter: That would indicate then, that, so far as deaths, disabilities and rejections on account of accidents and diseases directly due to service as locomotive firemen, are concerned, the rate per thousand has been practically maintained through the period?

Dr. Cory: Very substantially.

Mr. Carter: It varies, sometimes?

Dr. Cory: Yes, it varies.

Mr. Carter: I note in 1907 and 1908 there was a decline, to what would that be due?

Dr. Cory: To business depression, I think.

Mr. Carter: To business depression in that year?

Dr. Cory: Yes, sir.

Mr. Carter: If in the latter part of December, 1913 and 1914, there is a greater, or as great a depression in railroad business, it might show a like decline?

Dr. Cory: There is one peculiar thing in our experience for 1913 that I might as well bring out, and that is, while we had the largest number of members admitted, the period of service as enginemen was the shortest of any that we figured. It showed that the men were coming into engine service and leaving it more rapidly in 1913 than ever before.

Mr. Carter: You mean to say a large number of these men who stayed six months, and secured membership in the organization—

Dr. Cory: Eventually left the engine service.

Mr. Carter: Left the engine service?

Dr. Cory: Yes, sir.

Mr. Carter: Do you think that possibly the introduction of huge locomotives, and long and heavy freight trains, would discourage the average employe?

Dr. Cory: I should think it would. It is the hardest kind of work I know of.

Mr. Carter: He thinks the game isn't worth the candle, is that right?

Dr. Cory: I imagine so. It is very hard work, Mr. Carter.

Mr. Carter: What have you on page 54?

Dr. Cory: On page 54 I have the same table that was reproduced by Dr. Harris, in its entirety. That shows the number of deaths and disability claims paid by the Brotherhood of Locomotive Firemen and Enginemen, the number of members at the close of each year, the death and disability rate per thousand members exposed, and the percentage of loss for death, and the percentage for disability, for all the years inclusive, 1882 to 1913.

Mr. Carter: Now, combined mortality and disability, taking that combined rate per thousand members per year—or take the death rate per thousand members. No, we will just take the combined mortality and disability rate for one thousand members. I note that in 1903 it seems to be abnormally high? How do you account for that?

Dr. Cory: That is really the experience for eighteen months instead of a year. The change of the fiscal year took place, where eighteen months were included.

Mr. Carter: That year 1903 would be actually eighteen months?

Dr. Cory: A year and a half, yes, sir.

Mr. Carter: That was occasioned by changing the beginning of a fiscal year from July 1st to January 1st?

Dr. Cory: Yes, sir.

Mr. Carter: Do you find any great decrease in the rate per thousand members, with the exception of a few high points here and there?

Dr. Cory: Since 1907 the rate has decreased a little bit.

Mr. Carter: Do you think that Safety Appliance laws, such as have been described here, would tend to decrease the railway accidents?

Dr. Cory: Yes, sir, it is my opinion that the efficiency of

the safety appliances is reflected in our experience after the year 1907.

Mr. Carter: Then, possibly, this Brotherhood has already saved in death and disability claims, more than it cost to have some representative at Washington trying to secure such laws, is that true?

Dr. Cory: I should think so. I don't know how much they have spent, however.

Mr. Carter: Well, I will say it only takes one or two claims a year to pay the expense.

Dr. Cory: Undoubtedly that rate per thousand would result in a great saving.

Mr. Carter: Have you any other remarks to make concerning this Exhibit 45?

Dr. Cory: No, sir.

Mr. Carter: That is all.

The Chairman: You may cross-examine, Mr. Sheean.

CROSS-EXAMINATION.

Mr. Sheean: Just take this last page, page 54, Doctor; in that period from 1907 down, the combined mortality and disability has been steadily declining each of those years?

Dr. Cory: Yes, sir.

Mr. Sheean: And the ratio between the disability and death has not changed very much in this latter period, about twenty and eighty per cent, apparently, during most of the time.

Dr. Cory: From 1907 to 1913, Mr. Sheean, it has remained pretty much the same. That is, with the exception of 1907, where it was rather high. After that it is rather low. And, I want to say in connection with 1907 that that was the worst year that we ever had in the experience of the Brotherhood. They just simply, for some reason or other, slaughtered our members, right and left.

Mr. Sheean: There has not been, since 1907, any great change in the safety appliance laws, has there?

Dr. Cory: Well, if you will go back to 1904—

Mr. Sheean: Yes, back further.

Dr. Cory (continuing): You will see the beginning of the reflection of our experience, and with the one exception of 1907, where we had an uncommonly high slaughter rate, you will see,

I think, the adoption of the safety appliance laws in these figures.

Mr. Sheean: And that shows a steady and gradual improvement from year to year?

Dr. Cory: Down until about 1908, and then business in 1910 being good, there is a little increase; and with the falling off again, it has dropped down to 6½ men, we will say, per thousand.

Mr. Sheean: There has been a gradual improvement, both in the death rate and also in the combined mortality and disability rate, has there not?

Dr. Cory: If you have an improvement in the death rate and combine it with the disability rate, consequently the improvement in the death rate would be reflected in the combined rate.

Mr. Sheean: Yes, but you have separately shown as to disabilities over in the first column.

Dr. Cory: That is shown in the first column, yes, sir.

Mr. Sheean: So that, as to disabilities considered separately, there has been a general improvement during the last five or six years?

Dr. Cory: That is not so clearly shown as the death rate.

Mr. Sheean: Well, considered alone, and going back to 1909, you had then a disability rate of 2.08 in every thousand?

Dr. Cory: Yes, sir.

Mr. Sheean: In 1910, 1.89; in 1911, 1.75; in 1912, 1.62; in 1913, 1.58.

Dr. Cory: Yes, sir.

Mr. Sheean: So that, to that extent, there has been during this last period of time, an improvement in the disabilities?

Dr. Cory: I think that, generally speaking, since the advent of safety appliances, there has been a diminution both in the death rate and the disability rate of the Brotherhood.

Mr. Sheean: Now, Doctor, in those later figures, would the change in what was considered disability previous to 1909, and disability subsequent to 1909—well, they are all carried under the head of disability, are they not?

Dr. Cory: How is that?

Mr. Sheean: I think there was a change in what you call disability by reason of the change in the rules in 1909.

Dr. Cory: The change was not in 1909. It was in 1894, where, up until 1894, we paid for any disability that was total and permanent.

Mr. Sheean: I meant particularly with reference to blindness, Doctor. I think that under the head of disability, until 1909, did you say—

Dr. Cory: Beginning at 4:40 P. M., September 22, 1908, our organization enacted a law to pay for one-eyed blindness.

Mr. Sheean: Yes.

Mr. Cory: Prior to that it had been both eyes.

Mr. Sheean: It used to be both eyes?

Dr. Cory: Yes.

Mr. Sheean: So that, even on this improvement of disabilities in this last period from 1909, you not only have shown a reduced ratio, but you are also paying as disabilities, certain claims which would not have been disabilities under the rules prior to that time?

Dr. Cory: Yes, sir, so far as blindness is concerned.

Mr. Sheean: And on the page preceding, Doctor, page 53, I just wanted to make sure as to whether or not the column 1909, which shows apparently an increase from 7.062, to 10.441, might not be accounted for in part, by a change in the base, namely, that you are now paying for disabilities which would not have been paid for previous to that time?

Dr. Cory: That is accounted for partly in that way, and partly by increased business.

Mr. Sheean: Then, from 1910 down, the table showing the number of deaths, disabilities and rejections, the combination of the three, on account of accidents and disease directly due to services as locomotive firemen, has steadily and gradually improved?

Dr. Cory: Not altogether. In 1912, it shot up, and then when the business depression of 1913 came along, it dropped back again.

Mr. Sheean: In 1912 it went up above 1911, but not as high as it was at the time the last arbitration was held, or the year in which the arbitration was held, 1910.

Dr. Cory: It is very nearly the same; there is only one-tenth difference.

Mr. Sheean: Then by thus going up so high in 1912, it made the reduction in 1913 more marked?

Dr. Cory: I don't know as to that.

Mr. Sheean: 1913 is lower than any of the years in this period from 1910 on, beginning with 1910, is it not?

Dr. Cory: Yes, sir.

Mr. Sheean: So that whatever there has been in the way of occupational diseases, deaths or disabilities, has shown a decreasing rate since 1910?

Dr. Cory: I think that the decrease in 1913 was mainly due to the young firemen leaving the service. While we have his membership, he is not out there on the firing line exposed to danger.

Mr. Sheean: Yet the comparison there is made on precisely the same basis as you have selected as a basis for a comparison through the corporate life of your organization.

Dr. Cory: This is a table to reflect not only the business condition of the country, but the condition of railroad operation and our experience. I think it is a pretty good barometer.

Mr. Sheean: And by that barometer, and judged by the number of thousands of men that are covered by the protection of your organization, both death and disability has improved in the last three years, judged by that barometer.

Dr. Cory: No, I think not. I think the condition remains very much the same.

Mr. Sheean: Then the register of your barometer as shown on this page 53, should be corrected and revised, should it not?

Dr. Cory: No, sir. There are certain conditions where we have a low fluctuation, such as in 1908-1909. That is business depression. When business gets good in 1910 more trains are moving, more accidents are occurring, more men out on the firing line, it goes up. When business gets poor, as it did in 1913 and last year, it comes down.

Mr. Sheean: Doctor, in 1910, where there is an increase in business, the deduction made by the Interstate Commerce Commission, with reference to accidents in years of great business, is because of the greater number of inexperienced men who are put into the service at the time of a great increase in business. Do you concur at all in that view, that that may also enter into it?

Dr. Cory: That is one of the factors.

Mr. Sheean: That is one of the factors?

Dr. Cory: Yes.

Mr. Sheean: So that in a boom time when all of the young trainmen and young firemen and young engineers are called into this expanded service, the records do show that the accidents which occur with the younger men in times of great expansion are greater proportionately than at other times?

Dr. Cory: That is just what 1910 shows here.

Mr. Sheean: So that, in part, at least, the increase in 1910 was because men without sufficient railroad experience were engaged in the transportation service, the failure to keep the rate down to where it had been on more experienced men, in part is reflected by that?

Dr. Cory: I would take it partly to be so.

Mr. Sheean: Then since 1910, or getting it down to normal conditions, and operation with experienced men, as it was before, is there an improvement since that time?

Dr. Cory: 1911 shows an improvement over 1910; and 1912 again shows a like improvement over 1911.

Mr. Sheean: Yes.

Dr. Cory: But 1913 shows a marked improvement over any of the three preceding years.

Mr. Sheean: Now, just considering page 53 in connection with—

Mr. Byram: May I interrupt you a moment?

Mr. Sheean: Yes.

Mr. Byram: Did not Mr. Carter correct you in the statement you made that 1913 was a poor year for the railroads?

Dr. Cory: Mr. Carter misunderstood what I meant. I meant that our experience was that, while we had the largest number of members admitted, the period of service was the shortest, and that the men were coming into railroad service and going right out again.

Mr. Byram: Yes, but you attributed certain statements you made, to the fact that there was a business depression in 1913, that the business of the railroads was not good. Is that right? Did I understand you to say that?

Dr. Cory: Beginning of business depression?

Mr. Byram: Well, during 1913, the prevailing volume of business on the railroads was less or more than usual?

Dr. Cory: I don't know what the volume of business on the railroads was. I know that along toward the fall there was considerable unrest, due to the proposed banking law, and other proposed changes. In traveling around the country that is all I heard discussed in the sleeping cars and hotels, was business depression; business depression in every walk in life. And, my idea of business depression was gained mainly from what I heard in my conversations with business men throughout the continent.

Mr. Byram: But, as I understood it, you were attributing it to business depression on the railroads, and I assumed you meant—

Dr. Cory: You misunderstood me, I think.

Mr. Byram: You do not claim that business was not good on the railroads?

Dr. Cory: No, sir, that is not my claim. My claim is that the firemen did not stay in railroad service in 1913 as they had stayed in previous years; that the period of membership was shorter.

Mr. Byram: I understood you to mean that your criticism of the change in the showing of your statistics during 1913 was due to business depression on the railroads.

Dr. Cory: No, general business depression.

Mr. Byram: And that general business depression was not reflected in the railroad service?

Dr. Cory: I don't know as to that.

Mr. Sheean: Doctor, if you can compare page 52 with page 53; do I understand, or may I properly understand, rather, from those two tables, that in 1913 you rejected about twice as many applicants per thousand as were either killed or disabled, in any way traceable to railroad accidents?

Dr. Cory: In 1913 I rejected 547 applicants for all causes.

Mr. Sheean: And the ratio per thousand for rejections was 17.08 per thousand?

Dr. Cory: We had 17,440 admissions for the year 1913.

Mr. Sheean: The ratio carried in the last column was about 17.08 per thousand?

Dr. Cory: Yes, sir.

Mr. Sheean: And the ratio of deaths and disabilities to rejections, on account of accidents and disease, directly due to

service as locomotive firemen, was 8 per thousand, as shown on page 53?

Dr. Cory: You are speaking of the membership in one place and in the other place it is the number of applicants that year. In one we are taking the volume of new business and in the other we are comparing the members.

Mr. Sheean: Of every thousand specially selected persons who have passed the railroad examinations and who applied to your department for examination in 1913, you rejected a larger percentage than the percentage which the railroad accidents and deaths bore to the total?

Dr. Cory: I did. I rejected 17. And if you will follow the column for defective vision, you will find I had 105 applicants who developed defective vision between the time they entered railroad service and the time they made application for membership.

Mr. Sheean: I understood you to carry over to page 53 all of those rejections which you attributed to railroad service, because the heading on page 53 is "Deaths, Disabilities and Rejections. The following table shows the number of deaths, disabilities and rejections on account of accidents and disease directly due to service as locomotive firemen."

Dr. Cory: I did that to see whether the effect was similar, to see what the effect on the entire number of firemen I could get any line on was, in the membership and in those who applied. Now, I do not know how many firemen you had in the railroad service who did not apply for membership. If I could get that and have those fellows examined, I would have a complete table.

Mr. Sheean: Going back to 1902 and reducing it to a ratio per thousand of rejections, except in the very early years and possibly there—you carry this back to 1899 on page 53 and to 1901 on the other page—

Dr. Cory: This table on page 52 is the table on which I base my opinion mainly that there is something inherent in engine service for firemen that is detrimental to health, and I have taken these circulatory diseases, these kidney diseases, these liver diseases, these amputations, and injuries to eyesight, which have caused me to reject these men, and tabulated them with the number applying and reduced that to a rate per thousand, and that is the rate per thousand in the last column of

page 52. Now, 1,980 of those are carried over and embodied into the table on page 53.

Mr. Sheean: And carrying over that 1,980 into the table on 53, the general result is that in the last several years the ratio of rejections per thousand applicants is greater than the death and disability rate in the organization?

Dr. Cory: That is merely showing that I am exercising a more careful selection of risks, and to that extent I am beating down as much as I can the death and disability rate in the Brotherhood.

Mr. Sheean: And your ratio of rejections, during the last year, is higher than your death rate for the organization?

Dr. Cory: Yes, sir. I am weeding out the weaklings.

The Chairman: We will take a recess to 2:30 P. M.

(Whereupon, at 12:30 o'clock P. M., a recess was taken until 2:30 o'clock P. M.)

After Recess.

DR. W. B. CORY was recalled for further examination and, having been previously sworn, testified as follows:

Mr. Sheean: Doctor, turning to the first part of your Exhibit 45, in which you have quoted from various authorities as to the effect of light and heat upon eyesight, you have made a very exhaustive examination of all the text books as to the effect of light and heat, and have compiled it here?

Dr. Cory: Yes, sir.

Mr. Sheean: In the compilation, as I have read it through here, there is no statement by any one of the medical authorities quoted which places locomotive firemen as among the class of persons whose sight has been affected, under observation or experiment, by either light or heat?

Dr. Cory: There are two or three statements where it says "The same conditions are presumed to exist in similar occupations if investigated." The reason that those statements do not include firemen is that it never was investigated before.

Mr. Sheean: That is the point, the only thing I wished to develop, Doctor, that all of the quotations of various occupations there is no reference particularly to engineers or firemen?

Dr. Cory: There are two or three references to stokers,

and they say that similar conditions will probably be found to exist in similar occupations.

Mr. Sheean: Well, stokers, Doctor, I presume, mean stokers on a steamship?

Dr. Cory: No, I think it means stokers on locomotives in England. I think they refer to the fireman as a stoker and the engineer as a driver.

Mr. Sheean: Well, the stoker, of course, on a steamer, is ordinarily in a constant glare and constant heat, isn't he? Or do you know anything about that?

Dr. Cory: I have no knowledge personally of what the conditions are there.

Mr. Sheean: And with reference to the firing on a locomotive, I suppose you have some personal knowledge there?

Dr. Cory: Yes, sir.

Mr. Sheean: What has your observation been as to whether that is continuous or intermittent?

Dr. Cory: It is intermittent.

Mr. Sheean: And about what is the size of the fire box, Doctor, that is open for a few seconds at a time?

Dr. Cory: Oh, perhaps it is a foot and a half by fifteen inches, oval shape.

Mr. Sheean: And in the ordinary operation, it is only a very few seconds until the door is closed?

Dr. Cory: Yes; but the operation usually continues, and it is closed between fires.

Mr. Sheean: Closed between fires?

Dr. Cory: Yes.

Mr. Sheean: And when the fire box door is opened on a locomotive the draft generally is inward, is it not, quite strongly?

Dr. Cory: Unless the engine is shut off.

Mr. Sheean: Unless the engine is shut off. So that, ordinarily, in the operation of an engine, while any firing is being done the whole draft is away from the fire box door?

Dr. Cory: But the draft won't have any effect on the light.

Mr. Sheean: No. The heat I was talking about now, Doctor. The draft is away from the fire box, Doctor, at the time it is open?

Dr. Cory: Mainly so. But the way engines, I understand, are drafted, take the Slater front end, it throws a larger mar-

gin of heat out on the deck. Firemen have told me personally that they have had their overalls burned right off them on the deck; their shoes burned on their feet.

Mr. Sheean: The tendency with the opening of a fire box door is to create a draft inward, you say?

Dr. Cory: I would take it a good deal of the draft went through the fire box door when open.

Mr. Sheean: I notice in this bibliography there are quite a number of views presented by experts about the bottle makers' cataract that is found, as to the cause of it, I mean.

Dr. Cory: Mr. Snell undertook to cast some doubt upon the causation of cataract, and he wrote to the owners of the glass factories and asked them to report personally to him the number of cases of cataract in their employes that they knew about, and because he got no replies he concluded that there were no cataracts in the occupation.

Mr. Sheean: I meant as to those who have expressed opinions, there is quite a difference of opinion as to whether or not—

Dr. Cory: There is a little difference as to whether it is caused by heat alone, or by heat and ultra violet rays together.

Mr. Sheean: Or by ultra violet rays alone?

Dr. Cory: Alone, yes.

Mr. Sheean: There is a different conclusion reached among the different observers in that line, some attributing it to the ultra violet rays alone, others to heat alone, and others to a combination of both?

Dr. Cory: But the fact remains that right at the nodal point in the posterior part of the lens, is where the cataract begins; and I might say that is where the principal rays of light of all the cones of light cross. That is the point where the cataract begins in these cases, and on that all investigators agree. Now, as the condition goes on, the cataract extends from this nodal point and involves the entire crystalline lens.

Mr. Sheean: With all of the observers in that respect, Doctor, as to boiler makers' cataract—

Dr. Cory: I didn't say boiler makers had cataract.

Mr. Sheean: Bottle makers, I meant to say, bottle makers' cataract, there is considerable variety of opinion?

Dr. Cory: No, not so much when you simmer it down. The fact that they have cataract is agreed to, but as to exactly which

light, which part of the bright light caused it, there is some difference of opinion.

Mr. Sheean: And as to whether or not heat has any influence in combination with light is also a matter about which medical authorities seem to debate?

Dr. Cory: And the reason they debate it is that the aqueous humor which lies behind the cornea and in front of the lens, is made up largely of water, and water has the power to filter out heat rays.

Mr. Sheean: In any event, whatever reasons they assign, there is a conflict of opinion, or difference of opinion, as to the cause of bottle makers' cataract?

Dr. Cory: Not so great as to the cause of cataract as is the difference of opinion which exists as to what causes the degeneration of the optic nerve and retina. There is more of a difference of opinion on that than there is as to what causes cataract.

Mr. Sheean: Then, as to what is the matter with the bottle maker's eye, there is some difference of opinion?

Dr. Cory: Just a very little.

Mr. Sheean: And in that discussion as to the possible effect of the ultra violet rays, or the sub-red rays, or a combination of both heat and light, the whole literature is set forth here?

Dr. Cory: Yes, sir.

Mr. Sheean: And in all your thorough examination of all the literature, you have not found any opinion expressed by any medical authorities specifically, with reference to locomotive engineers or firemen?

Dr. Cory: Not naming them as such. They merely assume that a similar condition exists in allied occupations or similar occupations.

Mr. Sheean: So, with reference to optic atrophy, the optic atrophy cases that are specified in the report here, Doctor, you have said that, in your observation, after excluding a certain number of things from which optic atrophy does sometimes arise, there remained unaccounted for some of the cases; that is, unaccounted for as to cause?

Dr. Cory: Yes, sir.

Mr. Sheean: And by this process of elimination or taking the optic atrophy that you could demonstrate or trace to some

of the things you spoke of this morning from which optic atrophy sometimes results, there still remains a number of cases not traceable or demonstrable to certain assigned causes?

Dr. Cory: And to those, we believe that the effect of heat and light of the fire box has been the active cause.

Mr. Sheean: But, in the medical authorities cited here, do you find any statement of optic atrophy directly traceable to light or heat?

Dr. Cory: Retinitis producing continual or permanent blindness would be optic atrophy.

Mr. Sheean: You speak of retinitis as producing—

Dr. Cory: The retina is the expanded portion of the optic nerve in the eye, and where you have a portion of the nerve that has degenerated, where you have produced a blind spot, for that spot that is blind you have optic atrophy.

Mr. Sheean: Now, under the causes of optic atrophy you have included total and partial death of the optic nerve?

Dr. Cory: In the cases of optic atrophy we have included optic atrophy to the extent that projection is lost.

Mr. Sheean: In any of the medical authorities enumerated —do you find among any of them an expression of opinion that either extreme light or heat or both may result in the death of the optic nerve?

Dr. Cory: We find it extensively stated that retinitis is caused by extreme light. It is conceded that while the actinic rays and the ultra violet rays are absorbed largely by the crystalline lens and that the heat rays by the aqueous humus, we know that light does have an effect on the optic nerve and leaves us to the assumption that the luminous ray must be the factor that causes the difficulty in the retina.

Mr. Sheean: What I was getting at is whether or not that is your conclusion or whether any of the authorities here have definitely and specifically assigned as one of the causes of optic atrophy either light or heat?

Dr. Cory: It is somewhat of their conclusion and it is my own conclusion that long continued exposure to bright light causes diseases in the optic nerve of the retina. That conclusion is mainly forced upon me by my experience in the field.

Mr. Sheean: Will you refer, Doctor, to which one of these

medical authorities cited in which it is stated that either light or heat may result in optic atrophy?

Dr. Cory: If you will consider what Samuel Theobald, on page 3, says: "Retinitis resulting from undue exposure of the eyes to the direct rays of the sun oftenest brought on by observing an eclipse of the sun without proper protection of the eyes, and to intense electric light as in electric welding, usually manifests itself in the region of the macula." Now, that is the beginning of the condition that leads to optic atrophy.

Mr. Sheean: That is retinitis again. Do you not, in the reports, distinguish between optic atrophy and retinitis?

Dr. Cory: Certainly.

Mr. Sheean: Conceding that there is authority for the statement that either light or heat may cause retinitis, and distinguishing retinitis, as you distinguish it in these reports, from optic atrophy, are you able to state whether any of these authorities attribute optic atrophy, thus distinguished from retinitis, from either light or heat?

Dr. Cory: They have none of them made an investigation as to the locomotive fireman.

Mr. Sheean: Not as to the locomotive fireman, but as to whether or not in any investigation that they have made or anything that has fallen under their observation in their profession, they have assigned as a cause for optic atrophy, exclusive of retinitis, the effect of excessive light or heat or both?

Dr. Cory: They refer to the beginning, the lesser degree of optic atrophy, often as retinitis, and they do ascribe the effect of bright light as a cause of retinitis. Now, if it is continued over a long period of time, that irritation and inflammation, until the nutritive processes are interfered with to such an extent that the special function is entirely lost, then you have optic atrophy and blindness. If the process is not continued long, as in just looking at an eclipse, the condition will clear up in a few days. The blind spot, if it remained, would be the central portion, a small blind spot, where the image of the sun appeared, and if you continued that over a long period of time, then you would get optic atrophy. These men have not so stated it, but many local doctors who have met these conditions in the field do state it.

Mr. Sheean: In all of the compilation of authorities as

given here, none of the authorities there has stated optic atrophy as a direct result of excessive heat or light?

Dr. Cory: No, they use the term retinitis.

Mr. Sheean: That is all.

RE DIRECT EXAMINATION.

Mr. Carter: Did I understand you to say that optic atrophy is often the result of retinitis?

Dr. Cory: Yes, sir.

Mr. Carter: Do I understand you to say that all the authorities agree with you that light and heat, or light, at least, produces retinitis?

Dr. Cory: Every doctor will agree that direct sunlight, where the eyes are looking at an eclipse of the sun, improperly protected, will cause retinitis. They will agree that the intense light of an electric light will cause electric ophthalmia. For instance, such light as is produced when you have a short circuit—the flash produces that. Or snow blindness of those tourists who visit the Alpine regions and spend a considerable time on the glaciers, or who go into the Arctic regions and are dazzled by the bright light reflected from the snow. All of those conditions produce in the eye, retinitis, and if it was continued over a long period of time would result in atrophy of the optic nerve.

Mr. Carter: Do you remember the Dupell case in Peoria?

Dr. Cory: Yes, sir.

Mr. Carter: Will you describe that?

Dr. Cory: He did not have atrophy, he had cataract, following the short circuiting of an electric dynamo.

Mr. Carter: What was the effect?

Dr. Cory: He was blind for a considerable period until the cataracts ripened and they were removed. To take the place of the crystalline lens he has to wear thick, heavy glasses.

Mr. Carter: How was that caused?

Dr. Cory: When the dynamo short circuited there was an intense light thrown right into his eyes, and that so affected the lens that almost immediately cataract started.

Mr. Carter: There was no electric current that passed through his eyes?

Dr. Cory: No, sir.

Mr. Carter: That flash produced almost instantaneous cataract?

Dr. Cory: Cataract started almost immediately.

Mr. Carter: And there was specific evidence that light does produce cataract, was there not?

Dr. Cory: Yes.

Mr. Carter: Now, if optic atrophy is one of the results of retinitis and that is agreed to by the medical world, and if retinitis is caused by intense light and is agreed to by the medical world, then does not the medical world agree that optic atrophy, in many instances, is the direct result of light and heat?

Dr. Cory: Yes, sir.

Mr. Carter: Therefore, the line of argument of counsel for the railroads would only apply to what is said in this about optic atrophy being the direct result of light and heat, is that not true?

Dr. Cory: The first effect of bright light is retinitis. If it is continued for a long period of time, it results in atrophy. It is just an increasing degree of the same process.

Mr. Carter: Would you have any difficulty in presenting evidence of leading writers to substantiate your opinion that retinitis often results in optic atrophy?

Mr. Cory: No, that would be found. The difficulty would be to prove that any of these writers had ever made a special investigation of the fireman's vocation. They haven't done it.

Mr. Carter: Are you right sure of that?

Dr. Cory: Yes, sir, I am.

Mr. Carter: Suppose some of the investigators had investigated the condition of stokers in England; is that not the same thing as a fireman?

Dr. Cory: I take it that is the same occupation as that of a fireman in America.

Mr. Carter: The same as that of a locomotive fireman?

Dr. Cory: Yes, sir, I would take it so.

Mr. Carter: They speak of the fireman in England, particularly in scientific works, as a stoker?

Dr. Cory: I think so.

Mr. Carter: And of an engineer as an engine driver?

Dr. Cory: Yes.

Mr. Carter: Any reference by any English writer to a

stoker, you would consider that meant a locomotive fireman as well as any other kind of fireman?

Dr. Cory: I certainly would.

Mr. Carter: Now, with regard to this heat of the fire box being entirely absorbed by the draft in the engine, that is a mistaken idea, is it not?

Dr. Cory: It certainly is.

Mr. Carter: The heat is very intense, is that true?

Dr. Cory: Firemen have told me that they have had overalls and shoes burned right off their body while firing engines.

Mr. Carter: If there is a circulation of air in the atmosphere over an exposed surface, a draft, would that reduce the sun's rays or the heat of the sun's rays?

Dr. Cory: I do not get your question.

Mr. Carter: Is it not a fact that the heat of the sun's rays penetrates the draft of air, passing clear through it?

Dr. Cory: They do.

Mr. Carter: Then the heat can pass through this draft that is going into the fire box, can it not?

Dr. Cory: A certain amount of it passes through.

Mr. Carter: Well, isn't there a great amount of it passes through?

Dr. Cory: I think the heat that passes through to the firemen would be more intense than the heat that would pass through to the glass blower, but how much of the heat of the fire box went out of the stack, and how much went out on the deck, I don't know.

Mr. Carter: Will you turn to page 53. Counsel for the railroads examined you very carefully in making a comparison of the ratio of loss per thousand members per year between 1913 and 1912. I will ask you to make a similar comparison between 1913 on the one hand and the three years, 1907, 1908 and 1909. Do you notice a marked increase?

Dr. Cory: 1907 had quite an increase, but in the main they are about the same.

Mr. Carter: Perhaps I called one number too many. I will limit it to 1908 and 1909.

Dr. Cory: 1908 and 1909 were less than 1913.

Mr. Carter: Then the suggestions offered in making the comparison between 1913 and 1912, would hardly be borne out in

making the comparison of 1913 with 1908 and 1909. Is not that true?

Dr. Cory: That is.

Mr. Carter: Doctor, is it not a fact that since you have assumed the position of general medical examiner, that you have been accused of being unnecessarily severe in protecting the organization?

Dr. Cory: Yes, sir, that charge has often been made.

Mr. Carter: Do you think perhaps if you have been so efficient in protecting the interests of the organization against unjust admissions, that it perhaps has tended to reduce the number of claims paid by this Brotherhood?

Dr. Cory: I know it to be a fact.

Mr. Carter: For instance, let us presume—take the case of consumption of the lungs, Bright's disease of the kidneys, such as that, are you not far more exacting in recent years than was formerly the practice?

Dr. Cory: Not in regard to my own practice, but my practice is far more exacting than the previous practice of the Board.

Mr. Carter: Well, you take the methods of local examiners, was it not formerly the practice not to examine the urine of an applicant?

Dr. Cory: Well, now, I don't know what they did prior to my coming in there.

Mr. Carter: Well, I don't want you to cast any reflections on any of your predecessors, but is it not a fact that the urinary analysis is much stricter today than it formerly was?

Dr. Cory: If it is done, it should be done scientifically and honestly.

Mr. Carter: I appreciate your position, and won't ask you to reflect on any of your predecessors. You are very strict, however, are you not?

Dr. Cory: I try to be.

Mr. Carter: And you think that has resulted in a lower death loss and disability loss?

Dr. Cory: I do.

Mr. Carter: Would that partially account for what has been described here?

Dr. Cory: It would.

Mr. Carter: In regard to the beneficial effect of this safety

appliance legislation, would that be partly offset by the huge locomotives and heavy tonnage and excessive labor which are marked features of the last two or three years?

Dr. Cory: The safety appliances would probably reduce the number of accidents, and the large engines would probably increase the amount of diseases, and whether the diminished amount in one case would be offset by the increase in the other, I don't know, but there would be that tendency. While we lose in fatal accidents we increase in death from disease.

Mr. Carter: In comparing what appears to be a decrease in the loss ratio per one thousand members of 1913-1912, isn't this partially accounted for on page 43 and page 44, where it is shown that in 1912 there were thirteen cases of blindness resulting from the bursting of water glasses or lubricator glasses, which was reduced to five the following year, because of the presence of shields?

Dr. Cory: Yes, those eight cases would tend to bring it down.

Mr. Carter: That is all.

RE-CROSS EXAMINATION.

Mr. Sheean: Doctor, just to make clear this comparison between 1908 and 1909, as suggested; the first period selected by Mr. Carter there, 1908, of those two years, would cover the period, in which, in order to be disabled as to blindness, there would have to be total blindness of both eyes?

Dr. Cory: No, only up to September.

Mr. Sheean: Up to September, 1908?

Dr. Cory: September 22nd.

Mr. Sheean: And the later part of the period from that time on?

Dr. Cory: From that very minute, 4:40 p. m. on the afternoon of September 22nd, the law became effective and operative. It was put into operation immediately upon its passage.

Mr. Sheean: Have there been any other changes in the later time, the latter part of the period, by which you are now paying for disabilities which were not paid for previously?

Dr. Cory: Yes, they made one change in the last convention.

Mr. Sheean: I don't mean the period beyond the period

covered by this table, if that would cover something of that kind.

Dr. Cory: The law was enacted but did not become operative until the next day after this table ends.

Mr. Sheean: That I do not care for, Doctor, but simply as to whether or not, at any time between 1908 and the end of this period, there was any change in classification as to what were disabilities.

Dr. Cory: The change was made, but the law did not become operative, so the reflection is not in these statistics.

Mr. Sheean: Now, notwithstanding the suggestion that disabilities may have increased during the latter part of the period, by reason of heavier strain, the statistical tabulation on page 54 shows that both in disabilities and in deaths in the last three years, there has been a decrease in the ratio?

Dr. Cory: Per thousand members exposed.

Mr. Sheean: Per thousand members exposed, yes—Doesn't it? Running back as far as 1909 there has been a decrease from that time down in disabilities?

Mr. Cory: No, 1910 shows an increase again.

Mr. Sheean: Disabilities is the first column, is it not? 1909 I judge is the high spot, as I have carried disabilities across.

Dr. Cory: Oh, you are talking about disabilities.

Mr. Sheean: Disabilities alone.

Dr. Cory: Yes, we ran up a little bit high in 1909 for disabilities.

Mr. Sheean: And from that time down there has been a constant decrease in disabilities, the ratio of disabilities?

Dr. Cory: Yes.

Mr. Sheean: That is all.

Mr. Nagel: Doctor, apart from the source of origin, scientifically expressed, is there any question about the substantial correctness of your report upon the percentage of loss of sight in one or both eyes by locomotive firemen?

Dr. Cory: No, sir, they are taken accurately and exactly from our records.

Mr. Nagel: Do you know of any cause apart from the occupation of the firemen, which would serve to affect the result that you have reported?

Dr. Cory: Oh, yes, blindness could result from the ex-

cessive use of alcohol, or tobacco, or venereal excesses, or it might occur in some nervous diseases.

Mr. Nagel: Have you any reason to suppose that causes not connected with the employment, have a larger result in the case of firemen than they ordinarily have?

Dr. Cory: No, it is lower in the case of firemen. Firemen do not usually fracture Rule G; some of them perhaps use tobacco.

Mr. Carter: Explain what Rule G is?

Dr. Cory: Rule G is a general rule in operation on all railroads, I presume, that says that the habitual use of intoxicating liquors, or the frequenting of their place of sale, is sufficient cause for dismissal from the service.

Mr. Nagel: Then you know of no cause outside of the service, that would tend to affect the general percentage pertaining as to all causes?

Dr. Cory: Not unless it could be shown that these men were excessively venereal in habit; then there might enter in the specific element.

Mr. Nagel: You ought to know that?

Dr. Cory: Well, I cannot trace it in very many cases. I find a few cases where it comes in, but in the vast majority of cases it does not enter in, even to the extent it does among the general population at large.

Mr. Park: Doctor, speaking about the heat of the fire box, opening the door tends to cool off the fire box, does it not?

Dr. Cory: It might tend to reduce steam pressure a little bit.

Mr. Park: If an engine is popping, the usual method is to open the door in order to reduce the heat in the fire box, is it not?

Dr. Cory: Well, to allow the cold draft to come along the crown sheet would reduce the heat naturally for a minute or two, but it is not material when it comes to firing an engine.

Mr. Byram: Your statistics do not show how many of these cases of disability on account of blindness are one or both eyes, do they?

Dr. Cory: Practically all of them, beginning with 1909, were one eye.

Mr. Byram: One eye?

Dr. Cory: Yes, and practically all of them before 1909 were both eyes. We don't know how many one-eyed men—or at least I think Mr. Carter did make a census before the law was enacted, but what his results were, I don't know. But, if one eye was injured in the service prior to this time, we never knew about it because he had no claim on the organization.

Mr. Byram: Taking your figures on page 44 for 1913, where it is shown that there are five cases of partial or total blindness—

Dr. Cory: That is total blindness in one eye.

Mr. Byram: One eye. Is that a large ratio, five in 91,000 members of men such as your organization has?

Dr. Cory: It is much larger than the census reports or in other walks of life.

Mr. Byram: But as to active male inhabitants, the census I suppose would cover those men?

Dr. Cory: Yes, these would be included in the census report, and these would have to be taken from the census figure.

Mr. Byram: What is the census figure?

Dr. Cory: I wouldn't undertake to tell you offhand, but if you will get volume 3 for 1909, all that information is given.

Mr. Byram: You think then these five in 91,000, show more than the usual male population?

Dr. Cory: I do.

Mr. Byram: According to the census?

Dr. Cory. I do. But this is much lower than the previous year.

Mr. Byram: Yes, that is brought about by various things, as Mr. Carter described. That is all.

Mr. Carter: Doctor, is not blindness ordinarily a disease of extreme old age?

Dr. Cory: No, sir, I wouldn't say so.

Mr. Carter: You don't think then that old people are more liable to become blind, than young people?

Dr. Cory: There is that atrophy of the function, that lessening of the acuteness of vision; but people can be born blind, or they can acquire it any time after birth.

Mr. Carter: Doctor, it has appeared to me from general observation, that I have noticed more old people with defective vision that young people. Have you noticed that?

Dr. Cory: Yes, sir.

Mr. Carter: That is the question I asked you. If that is true would you not naturally expect a much lower rate of blindness, besides blindness the result of accident, among members of this Brotherhood, than you would of all the people enumerated in the census?

Dr. Cory: Yes, I would; because the hazard is great.

Mr. Carter: If the law of the organization formerly limited the payment of claims to blindness in both eyes, was it not often the process that a man lost sight in one eye, and then the affliction was communicated from one eye to the other eye at a later period, and there was a loss of sight in both eyes through sympathetic action?

Dr. Cory: That sometimes happens where improper treatment, or neglect of treatment occurs, where one eye is injured, sympathetic ophthalmia sometimes causes blindness in the other eye. Maybe the patient wants to save the injured eye, or refuses to have it taken out in time, and the result ultimately is blindness in both eyes.

Mr. Carter: Then so far as our claims are concerned, there would be fewer cases of blindness in both eyes now than formerly, would there not, because we pay the claim before the affliction has extended to the other eye?

Dr. Cory: Oh, yes, we hardly ever have two eyes affected now, or if the second eye is affected, it is practically a small degree, maybe 20-30, or 30-40.

Mr. Carter: Doctor, have you made a special investigation—

Mr. Burgess: I would like to ask a question, with your permission, Mr. Carter.

Mr. Carter: Go ahead.

Mr. Burgess: Doctor, please refer to page 46 of your exhibit; with regard to that long black line where you show 884 disabilities paid for amputations. In event one of your members was injured in the leg, arm, foot or hand, and it was the judgment of the surgeon that it would get well without amputation, but in a period of four or five months he discovered it would be necessary to amputate that limb, or hand, or foot, or arm, in order to effect a cure, under just what tabulation would that injury be placed?

Dr. Cory: Under those not employed in engine service. Otherwise employed.

Mr. Burgess: It would not appear, then, under the heading of amputations?

Dr. Cory: Yes, it would be an amputation, but—if there was a fracture and the parts protruded through the flesh, great laceration of soft parts, and in the surgeon's mind there appeared a possibility of saving the limb and a portion of the function, if he kept him in the hospital for months or a year and endeavored to save the limb and eventually did not, it would appear as an amputation just the same, but the man being out of engine service would be listed in our statistics as "otherwise employed."

Mr. Burgess: Doctor, I beg your pardon if I am asking a question that does not seem exactly fair, but the Exhibit 42 furnished by Mr. Hawley of the Firemen and Enginemen's organization tabulates a list of injuries under "other causes," and I was trying—

Dr. Cory: What page?

Mr. Burgess: Page 4. And I was trying to ascertain where an injury of that kind that I have specified in the former question would be tabulated.

Dr. Cory: If the man was not in engine service at the time we paid the claim, it would come under "others." If he, in making his claim papers, stated he was still a fireman or engineman or hostler, it would be tabulated in the first three: But, if he were out of the service and so stated it, it would come under "others."

Mr. Burgess: So that, while a member might receive this injury while actually employed as an engineer, fireman or hostler, it is possible to tabulate them under a different heading?

Dr. Cory: We tabulate them under the heading of their occupation at the time we pay the claim, and not at the time the injury was sustained.

Mr. Burgess: Now, Doctor, turning again to page 46 of your own exhibit, I understand the word "amputations" refers solely to the amputation above the ankle or the wrist. Is that true?

Dr. Cory: At or above is the law.

Mr. Burgess: Now, in the event a fireman lost his hand

entirely, except the thumb, a wound like that, that would disqualify him as a fireman, but that would not come under the heading of amputation?

Dr. Cory: No, we would not pay a benefit for that kind of an amputation.

Mr. Burgess: Now, would he receive anything from this other fund known as the benevolent fund?

Dr. Cory: He might, if, in the opinion of the board of directors or the convention, his necessity was such as to warrant them to be charitable.

Mr. Burgess: I can recall one particular instance where a fireman had his left foot removed, all except the heel. In that case that would not be recorded as an amputation?

Dr. Cory: No, sir. That would be an amputation below the ankle joint.

Mr. Carter: Dr. Cory, did you make a special investigation as to the comparison of rates and insurance benefits of different organizations?

Dr. Cory: I did.

Mr. Carter: Do you identify that (handing witness Exhibit 46) as the result of your investigation?

Dr. Cory: It is.

Mr. Carter: Your report?

Dr. Cory: It is.

Mr. Carter: We desire to introduce this, Mr. Chairman and gentlemen, as Exhibit 46.

(The document, so offered and identified, was received in evidence and thereupon marked "Employes' Exhibit No. 46, January 14, 1915.")

Mr. Carter: Doctor, briefly set forth what this exhibit shows?

Dr. Cory: This exhibit is intended to show the classification of locomotive engineers and locomotive firemen as insurance risks, according to the ideas of the accident insurance companies, the old line life insurance companies, and the various fraternal companies of the country. The companies were not selected with any special reference, but were taken as companies that were exemplary in the business, and who did a large volume of insurance business. The idea was to take their rate books and classifications in the hands of their agents in the field and

ascertain on just exactly what basis they approach a locomotive engineer and a locomotive fireman for business.

The first, on page 1, is the classification of the Continental Casualty Company of Chicago. The tabular matter is taken from the Accident and Health Manual issued in the year 1914, and is found on pages 125 and 126 of that manual. They make no difference between a locomotive fireman in road service and switching service. They give a fireman a special fireman's contract, and limit the risk for death or dismemberment benefit to $1,000 on northern roads and $500 on southern roads. They vary the weekly indemnity from $5 to $12.50 weekly, and they charge on the northern roads for that benefit $1,000, carrying from $5 to $12.50 weekly indemnity, from $20 to $42.50 per annum. In the south they limit the contract to $500 for accidents, death or dismemberment, and the weekly indemnity to $5 and $7.50 per week, and they charge $20 to $28 for these contracts.

The locomotive engineer has a special engineer's contract, and it is the same for the locomotive engineer whether he is on a passenger, freight or switch engine. On northern roads his contract is limited to $2,000. On southern roads it is limited to $1,000 accidental death or dismemberment benefit.

The weekly indemnity on northern roads for engineers runs from $5 to $20, and he is charged from $18 to $63 per annum for the contract.

On the southern roads the benefit is limited to $1,000, and it carries from $5 to $20 weekly indemnity for sickness and accident. The annual premium runs from $22 to $71.50.

Now, I have shown the special contracts given enginemen, and in comparison with these contracts, I have taken their preferred risks. The preferred risks are bankers, merchants, professional men, etc., and their amount of insurance for accidental death and dismemberment benefit is limited only as to the amount of income. The weekly indemnity runs from $5 to $50. That is where the contract runs from $1,000 to $10,000. The weekly benefit runs from $5 to $50, and the annual premium is from $5 to $50 for the preferred risk contract.

I have carried the same idea through for the Fidelity & Casualty Company of New York and for the London Guaranty and Accident Company, Limited, of England; for the Maryland Casualty Company of Baltimore; for the New Amsterdam

Casualty Company of New York City; for the Travelers Insurance Company of Hartford, Connecticut, and substantially the same conditions prevail in all the companies, with the exception that the New Amsterdam Casualty Company of New York limits its preferred risks to $15,000.

Mr. Carter: Doctor, before you go into your portion of your report, just turn to page 1; I find that a contract for $1,000 in case of death or dismemberment, and $5 weekly indemnity is common with regard to firemen, with regard to engineers, and with regard to the preferred risks, such as merchants, bankers, professional men, and so forth?

Dr. Cory: Yes, sir.

Mr. Carter: What is the difference in the cost of that identical contract?

Dr. Cory: It costs firemen four times as much as it does preferred risks.

Mr. Carter: Would that indicate that he has four times the chance to be killed and injured?

Dr. Cory: That would indicate that in the opinion of this company the hazard was four times as great.

Mr. Carter: I note, Doctor, that there is an especially high rate for engineers and firemen in the South. To what do you attribute that?

Dr. Cory: Negro firemen.

Mr. Carter: Do you think, then, that a negro fireman because of incompetency increases the hazard of engineers and firemen?

Dr. Cory: I certainly do.

Mr. Carter: Do you think that is borne out by the charge for insurance that these insurance companies make where negro firemen are present?

Dr. Cory: I would so take it.

Mr. Carter: You do not believe that the southern railroads are not as safe, so far as track and bridges are concerned, as other roads, do you? You have traveled a great deal?

Dr. Cory: Well, I didn't pay much attention to the construction, but I would take it that in the main they were perfectly safe to travel on in comparison with other roads.

Mr. Carter: You do not know of any different climatic conditions, do you, from southern Texas and southern Florida, do

you, that would perhaps cause accidents? I don't refer to disease. I refer to accident.

Dr. Cory: No, I don't know of any climatic conditions that would cause accidents in Texas or Florida.

Mr. Carter: So this is evidence that all these insurance companies recognize a special hazard where negros are employed on locomotives?

Dr. Cory: I take it that the distinction is made because the negro is not as reliable as the white man.

Mr. Carter: He is not educated, as a rule?

Dr. Cory: Mainly, he is not.

Mr. Carter: You don't know any examination that they subject the negro fireman to?

Dr. Cory: I know nothing about negro firemen whatever.

Mr. Carter: Now, do you find that that same condition with regard to the South and the North is shown in many of these contracts?

Mr. Sheean: Both the South and West are together on page 2. We are with the South on page 2.

Dr. Cory: That only shows the idea that these companies hold toward geographical locations. There might be something in the West that would cause more hazard that in the East.

Mr. Carter: Do you think it would be defective rails and rotten ties?

Dr. Cory: That would have its effect. It certainly would.

Mr. Carter: You think the rotten ties in the West would about offset the negro in the South?

Dr. Cory: It might.

Mr. Carter: I note in all of these introductories they class "Firemen, locomotive or switcher."

Dr. Cory: They make no difference where the fireman is, whether in road service or switching service. The hazard is substantially the same.

Mr. Carter: They make no difference in the rate between a switch engine fireman or a road fireman?

Dr. Cory: Not at all. The rate is the same; the benefit is the same.

Mr. Carter: Then it would appear from the experience of this Continental Casualty Company of Chicago that the risk

is just as great for a switch engine fireman and road engine fireman?

Dr. Cory: In their experience it is.

Mr. Carter: There are a great many switch engine firemen in Chicago, are there not?

Dr. Cory: I guess so.

Mr. Carter: Perhaps more than any other city in the world?

Dr. Cory: I don't know what the census of the switch engine firemen in Chicago is, but I take it it would be pretty great. It is a great railroad terminal.

Mr. Carter: Then the Chicago company ought to know.

Dr. Cory: Well, they have got first hand information, right in the same city.

Mr. Carter: All right. Pass to the next.

Mr. Park: Well, Doctor, the Chicago company does business throughout the United States, don't they?

Dr. Cory: Certainly.

Mr. Park: This is simply their office in Chicago.

Dr. Cory: They do business in Chicago, too.

Mr. Park: Yes, all over the country.

Dr. Cory: All over the country.

Mr. Byram: How do these rates compare with the rates charged by your organization for the same men?

Dr. Cory: We charge a flat rate of $1,10 per month per thousand, and that amounts to $13.20 per year. In addition to the mortuary benefits we pay an amputation benefit, a blindness benefit, a consumption benefit, and the full benefit for uncompensated valvular disease of the heart, locomotor ataxia, paralysis and Brights' disease. In addition to the mortuary benefits, for $13.20 per year we pay seven disabilities, and the rate for the accident companies is exceedingly high by comparison.

Mr. Park: Do you make any difference between the North and the South?

Dr. Cory: Not at all. We don't make any difference between ages. It is the same rate per thousand; $1.10 per month for all ages, 18 to 45.

Mr. Nagel: Do you think the rate for firemen in the South is higher because the negro fireman is less careful than white firemen?

Dr. Cory: Less competent and less careful, that is my opinion.

Mr. Nagel: He is more susceptible to disease?

Dr. Cory: More susceptible to disease, and he is not of the same education. There are some diseases that his race predisposes him to.

Mr. Nagel: Then both elements enter into it?

Dr. Cory: Certainly. A matter of competency and heredity.

Mr. Nagel: Do you think the railroads would be justified in keeping a negro fireman if the risk was really increased by that employment?

Dr. Cory: Personally my opinion is there ought to be two white men on every engine in this country.

Mr. Nagel: I don't care so much for your personal opinion as for your judgment.

Dr. Cory: I think the fact that the negro fireman is on the engine increases the risk not only to the engineer and to the fireman but to the passengers on that train.

Mr. Nagel: Because he is less careful?

Dr. Cory: I think if something would happen to the engineer, a bridge might hit him, a signal telltale pole hit him, and the engineer was killed, that the negro is less competent to take that train to the terminal than a white man of the same capacity. I don't think he has the same amount of initiative that a white man would have under the same emergency.

Mr. Nagel: Is the rate of insurance higher for the fireman than for the engineer because the first employment involves greater risk?

Dr. Cory: The hazard to the fireman in accident business is greater than the hazard to the engineer. I am told by these companies that the fireman is the most expensive risk they have in train and engine service.

Mr. Nagel: Is there anything in the suggestion that the fireman being a younger and less experienced man is perhaps not as safe a risk on that account, as the older engineer would be?

Dr. Cory: I think it is more in the line of his duty, Mr. Nagel, that he has to climb out and take coal and water, and his train is in motion usually when he climbs over the coal to

get water, and he is really subjected to more dangerous conditions; to sprains of all kinds and jolts of all kinds that would give a temporary disability. More so than the engineer or even the brakeman.

Mr. Nagel: But he receives his first training as fireman, doesn't he, so that you have a more inexperienced man in that position in the very nature of things?

Dr. Cory: He is more or less inexperienced when he goes into the service. I think it is the practice of railroads to keep these inexperienced men on switch engines until they learn signals and a few elements of railroading. I do not think they put an absolutely green man right out on the main line for service of any kind.

Mr. Nagel: Still, his first service is performed there?

Dr. Cory: I think it is performed in the switching service.

Mr. Nagel: That in itself would increase the risk somewhat?

Dr. Cory: To switching service, yes.

Mr. Burgess: Did I understand you to say that the insurance companies give the presence of the negro fireman on some of the engines in the South as their reason for charging more for insurance in the South?

Dr. Cory: I did not so state it. I stated that was my opinion why the difference was made.

Mr. Burgess: Do they give any reason for it?

Dr. Cory: I have never asked them on that point. I have never cared to dig into the question of negro firemen.

Mr. Burgess: Well, they might have some other reason for it.

Dr. Cory: No, the agents tell me that is the reason, but I did not consider it was binding on the company, the fact that they did not distinguish between the North and the South, and the agents have said it is due to negro firemen, that coincided with my opinion and satisfied me on that point.

Mr. Sheean: Why do they put us in the West here, on this second page, in with the South, south of the Potomac and east of the Mississippi?

Dr. Cory: Perhaps as Mr. Carter suggested, your track out West was poor.

Mr. Carter: Do you remember the report of the wreck

on the Kansas City Southern, where the spikes were all out of the ties and the ties all rotted, the last report of the Interstate Commerce Commission on a bad wreck?

(No response.)

Mr. Sheean: Do any of the agents tell you that they have offset the rotted ties of the West with the negro fireman of the South?

Dr. Cory: Not at all.

Mr. Carter: If your theory is correct, the rate is higher in the South on the firemen because so many negroes are firemen, it seems it affects the engineer also.

Dr. Cory: Certainly. If you have an incompetent man working with a competent man, his incompetency is liable to get them both into trouble.

Mr. Carter: Do these organizations distinguish between any occupation as to the rates we charge?

Dr. Cory: No, sir, there is a flat rate on all members, whether in the engine service as a fireman, engineer or hostler.

Mr. Carter: Has there been any inclination on the part of our membership to forbid men quitting locomotives and going to the war?

Dr. Cory: No, sir. We have many men in Canada who have left their engines and gone over to fight the battles on the field of Flanders. They still hold their membership.

Mr. Carter: Did we not have a considerable number of members in the Spanish War and in the Philippine campaign?

Dr. Cory: We had a good many. What the number was I don't know.

Mr. Carter: Did we notice any increase in the death list when the men stopped firing locomotives and went to fighting?

Dr. Cory: Not at all.

Mr. Carter: Do you believe we will suffer by a good many of our men engaging in the present war?

Dr. Cory: We may, but I do not believe we will be able to appreciate the difference.

Mr. Carter: Hasn't it often been pointed out that the deaths and injuries to railroad men exceed that of any war?

Dr. Cory: I am not prepared to say about this war they are in now.

Mr. Carter: I saw a statement, Doctor, that the deaths and

injuries are less in this war, in proportion to the number involved, than in any of the recent wars.

Dr. Cory: I am not up on the war figures over there.

Mr. Carter: I understand that they have all dug themselves into the ground where they cannot be hit.

Dr. Cory: I don't know.

Mr. Carter: Well, go on with your report.

Mr. Park: Just before you go on, Doctor, do your reports indicate that there is any geographical difference in your risks?

Dr. Cory: Our personal reports?

Mr. Park: Yes.

Dr. Cory: I have not tabulated them for states. I know personally I have a bigger percentage of claims south of the Ohio and Potomac and east of the Mississippi than nearly any other section; that is, when you pro rate the number with the membership.

Mr. Park: Is there a larger percentage turned down in the South than in the North, do you think?

Dr. Cory: No, I believe my rejections are higher in the eastern territory, but our disability claims are more abundant in the South, east of the Mississippi and south of the Ohio and Potomac rivers.

Mr. Park: Climatic conditions—do they affect that in any way?

Dr. Cory: I don't know how many of them have the hookworm disease, and I don't know how many have malaria or yellow jack, or other micro-organismal diseases, or climatic diseases.

Mr. Park: There is a good deal more malaria in the South than in the North, is there not?

Dr. Cory: Yes, sir.

Mr. Park: And many more heat prostrations?

Dr. Cory: No, I don't think that can be shown. I think we have as many heat prostrations in Chicago as anywhere.

Mr. Park: According to the population?

Dr. Cory: No, according to the actual number of instances. Nature protects itself from the effect of intense heat by sweat; when you stop sweating then you are in danger of prostration.

Mr. Carter: Proceed, now.

Dr. Cory: The treatment of engineers and firemen by the

accident companies is substantially the same for all of them. Turning to page 6, the Old Line insurance companies, I took their rate books from the hands of their agents and I have quoted exactly what the rate book says, giving the date of issue of the book and the prohibited risk and the quotation.

The first is the John Hancock Mutual Life Insurance Company of Boston. The rate book was issued January 13, 1913, and page 2 of instructions to agents, shows:

"Prohibited risks. Railroad employes.—Conductors or brakemen on freight or mixed trains, locomotive engineers or locomotive firemen, road-bed laborers, section hands, switchmen, wrecking crews and yardmen are not accepted."

Now, the different companies treat these risks a good deal in the same way.

Coming to the New England Mutual Life Insurance Company, they charge a substantial increase upon men in engine service, in passenger service, the conductor, engineer, fireman, baggageman or brakeman are charged substantial increases, from $2.50 to $10 a thousand. Thus some occupations in freight or mixed service are excluded.

Now, other companies, instead of charging a substantial increase in the rate, rate up the age. The Home Life of New York, for instance, for conductors on mixed passenger and freight trains, engineers, engine firemen, engine hostlers, wipers, flue cleaners, limited to endowments maturing not later than actual age 55, age advanced twelve years. That means that these men can only receive an endowment policy, and they have to pay an advance in the premium for twelve years in advance of their age and no contract will be made unless the contract will mature before the actual age of the insured is fifty-five.

The New York Life Insurance Company made a careful study of the risks in 1907. Their actuary, Mr. Hunter, found that as for lomotive firemen, the expectancy, as compared with the actual death, was an increase of 75 per cent, and for engineers, about 45 per cent. He rates engineers up eight years and firemen twelve years.

The Prudential Company of Newark classes railroad employes, firemen on freight trains or mixed trains, as hazardous; firemen on passenger trains as hazardous; the hazardous rate for firemen, age twenty, is $25.36, for a whole life policy of

$1,000. The rate charged on a whole life policy at age twenty for $1,000, for an ordinary risk, is $14.83, so a fireman is charged $10.53 per thousand excess rate. This is similar to the practice of the Aetna, which rates up the rate 1 per cent per thousand of insurance, which would be $10 per thousand.

Now, the Old Colony Life of Chicago, for firemen on freight trains and passenger trains, limit it to ten and fifteen year endowments, with five dollars difference.

The Metropolitan Life of New York City will accept locomotive engineers in the ordinary department, but limits the contract to endowment insurance.

Locomotive firemen, engine hostlers, Pullman porters and section hands get their insurance in the intermediate department, and are limited to endowments only in the intermediate department. In the intermediate department the same kind of policy has a substantial increase in rate over the same policy in the ordinary department.

So, to recapitulate, Old Line companies either exclude the engineer and fireman outright, advance the rate or advance the age, and limit to endowment insurance, which is substantially the same thing as advancing the rate and the age both.

As to the fraternal societies—

Mr. Carter: Before you go to the fraternal societies, I would like to ask you one question. You say the Old Colony Life Insurance Company of Chicago provides life insurance to the locomotive firemen on the ten and fifteen endowment plan.

Dr. Cory: That is in freight and passenger train. They add a fee of five dollars.

Mr. Carter: Do you know what a ten or fifteen year endowment costs?

Dr. Cory: I haven't their rate book here and I could not quote it now, but the age I quoted before would be upwards of $50 a thousand.

Mr. Carter: Very expensive, is it not?

Dr. Cory: Rather expensive.

Mr. Carter: The probabilities are that no fireman would ever avail himself of that rate.

Dr. Cory: I think for firemen the rate is prohibitive.

Mr. Carter: It occurred to me, from your exhibit, that

these rates are established for the specific purpose of debarring these men from insurance.

Dr. Cory: One would think that by looking at the conditions imposed.

Mr. Carter: Now, passing on to what the fraternal societies have to say.

Dr. Cory: The various fraternal societies which report to the National Fraternal Congress of America, treat locomotive engineers and firemen in three ways. A large number of the largest and best, exclude them absolutely. Then there is a large number who accept locomotive firemen and engineers, but advance the rate or reduce the benefit, which is practically the same thing. Then there are a few who will accept engineers and firemen without any advance above their other rates. The only one that has a considerable standing is the Catholic Order of Foresters of Chicago, and their reason for not advancing the rate on engineers and firemen, as given to me, was that a few years ago they changed from the rate that they started with to the National Fraternal Congress rate, which was a substantial, a very substantial increase over the previous rate, and that when they did this they did not see fit, in their limited experience with this class of risks, to advance the rate individually for the risk.

Mr. Carter: Aren't some of the fraternal societies named in this list, in the list that does accept locomotive firemen, in distress now for members, of whatever character?

Dr. Cory: Yes, indeed, they are suffering the death of fraternal orders, which is that of old age, and any risk which would represent a contribution of anything toward the payment of benefits would be acceptable.

Mr. Carter: I note among these organizations listed here, there are organizations that once were the leading organizations of the country, so far as fraternalism is concerned, Ancient Order United Workmen, and Knights of Honor.

Dr. Cory: Those organizations, the largest proportion of their membership are old men, and their death rate is high, so they will take anybody in that will help to pay the risks.

Mr. Carter: They even take the chance of outliving the firemen?

Dr. Cory: Yes, sir.

Mr. Carter: That is all.

RE-CROSS EXAMINATION.

Mr. Sheean: Doctor, on the excerpts from Old Line companies, page 7, New York Life Insurance Company, in speaking of certain occupations, you class them as applicants engaged in occupations which involve some additional hazard. Do you remember how many classes of risks they have?

Dr. Cory: No, I do not recall at this time, but I was mainly interested in what they classed us with.

Mr. Sheean: You have made comparison in the rates preceding these, with what are called the preferred risks, such as merchants, bankers, the professions and so forth. Following the preferred risks what do all the Old Line companies next have?

Dr. Cory: Ordinary risks.

Mr. Sheean: Ordinary risks?

Dr. Cory: Yes.

Mr. Sheean: Then, following that?

Dr. Cory: Oh, I couldn't attempt to tell you; it varies: it is different; it goes down to hazardous, extra hazardous, and the last risk is perilous, which is practically non-insurable.

Mr. Sheean: Most of the Old Line companies here who insure firemen, place them in an intermediate class between the ordinary and hazardous, do they not?

Dr. Cory: No, we are placed in the extra-hazardous class.

Mr. Sheean: In the extra-hazardous class?

Dr. Cory: Yes.

Mr. Sheean: Then what was meant by this one here, perhaps you can recall it better than I, where they spoke of an intermediate class.

Dr. Cory: What company do they refer to?

Mr. Sheean: I thought perhaps you could recall it.

Dr. Cory: The Metropolitan Life Insurance Company of New York?

Mr. Sheean: I don't remember. I remember the use of that word "intermediate."

Dr. Cory: That is the Metropolitan Life Insurance Company, on page 8, the last one.

Mr. Sheean: Now, that is intermediate between what?

Dr. Cory: That is their department of insurance, and not the class of risk.

Mr. Sheean: Well, that is intermediate between ordinary and what?

Dr. Cory: And industrial insurance.

Mr. Sheean: Between ordinary and industrial insurance?

Dr. Cory: Industrial insurance is their highest insurance. Their principal department—

Mr. Sheean: Industrial insurance comprises what classes?

Dr. Cory: That is this ten-cent business they write on children around the country.

Mr. Sheean: What else does it cover? Does it cover any particular occupations?

Dr. Cory: No; I think, however, they will write a policy on anybody, five cents and up, weekly. It is a high rate and a low amount of insurance, which poor people sometimes carry. Now, between the ordinary department and their industrial department is their intermediate department, and in their intermediate department they write all kinds of contracts. They write a straight life, and a limited payment policy, and an endowment policy, but the rates for those classes of policies in the intermediate department carry a substantial increase in the rate over and above the rate for the same kind of policy in the ordinary department.

Mr. Sheean: But substantially a less rate than is paid in the industrial insurance?

Dr. Cory: A little bit less, but not much. It is a high rate.

Mr. Sheean: Would you say, now, that the spread between the rate to engineers and firemen, the spread between the intermediate class and the ordinary class, was a greater spread than the spread between the intermediate class and the industrial class?

Dr. Cory: I never made any computation on that point. I don't know.

Mr. Sheean: I was only following your own language, Doctor, that there is a considerable spread in the one case, to firemen are placed between the ordinary class and the industrial ascertain, if I could, whether this intermediate class in which class, was about midway between them.

Dr. Cory: Well, you could make that computation. If a

ten cent policy carries a $120 death benefit, you can figure it out yourself.

Mr. Sheean: I don't know, Doctor, as to what either of them do carry. I was wondering about it, was all.

Dr. Cory: Well, ten cents a week carries about $120 of death benefit.

Mr. Sheean: That is a $5.20 death rate a year?

Dr. Cory: On children, yes, it carries about $120.

Mr. Sheean: About $120?

Dr. Cory: Yes.

Mr. Sheean: And the rate here of $5.20 a year to the firemen would carry $1,000?

Dr. Cory: The firemen don't get that rate. The fireman gets a higher rate for endowment insurance in the intermediate department, than is charged by that insurance. For instance, if they charged $50 a thousand in the ordinary department for endowment insurance for firemen, they would charge him something higher than $50 for the endowment in the intermediate department.

Mr. Sheean: But how much higher you cannot tell?

Dr. Cory: I haven't the rate book here, and I would not attempt to quote it.

Mr. Sheean: On page 7, the Equitable Life, under the heading "Treatment of Applicants Engaged in Occupations which Are More or Less Hazardous," places in the same class bridge carpenters, bridge foremen, and painters, engineers, engine firemen, hostlers, wipers, flue cleaners and roundhouse foremen, freight conductors, track foremen, foremen wreckers and foremen construction work.

Dr. Cory: Go on, read the rest of it.

Mr. Sheean: "Accepted at an advance in age of eight years." That is, all of these classes there enumerated are put in the same category as to rates?

Dr. Cory: That means so far as this society's experience is concerned, these classes have about the same hazard, and are rated together.

Mr. Sheean: Yes. What classes, can you tell us, are just above or below these classes here, which are given an advance of eight years? Do you happen to have the Equitable's rate book?

Dr. Cory: I haven't those rate books with me. I can get them.

Mr. Sheean: I thought if you had them here you might give us an idea in this class of more or less hazardous occupations, as to what the Equitable looked upon as just a little bit more, and what just a little bit less hazardous than these occupations.

Dr. Cory: In the main, the table that Dr. Harris used yesterday, is correct, in my estimation. There are some risks that are perilous and not insured. Perhaps a stone cutter, or a marble polisher, or a coal miner, would have a little more hazard than a locomotive fireman, and a locomotive engineer would have a little more hazard than an engineer; but I think perhaps the two of them might have more hazard than a structural iron worker or bridge builder, that is, in our experience. Now, in the experience of some of these other societies, they might be on a parity and classed together.

Mr. Sheean: Speaking generally then, they have certain preferred risks, and then ordinary risks, and then some of them have intermediate between ordinary and hazardous, I think.

Dr. Cory: These are quoted as prohibited risks and extra-hazardous. Now, you see in some companies' opinion we are given the perilous class, and not insurable.

Mr. Sheean: But I am speaking now, Doctor, of one particularly, which classifies engineers and firemen, and track foremen, and bridge carpenters, as being more or less hazardous. Now, in the classification of that company, doesn't it ordinarily run, preferred, ordinary, hazardous, extra-hazardous and perilous?

Dr. Cory: About that, something like that.

Mr. Sheean: And they place you, or this particular class, I mean, between the ordinary and the hazardous?

Dr. Cory: No, I think they place us in the hazardous.

Mr. Sheean: Yes, in the more or less hazardous class. Below that, or above it, following the hazardous class, there is an extra-hazardous, and then a perilous class of rates?

Dr. Cory: In some companies.

Mr. Sheean: In practically all of the Old Line companies.

Dr. Cory: No, not at all; we are in the perilous class in

some of them, and we get in the extra-hazardous class in others, and we are in the more or less hazardous class in others. We are variously classified, according to the experience of the various companies, but there is a pretty general conception that there is a considerable hazard attached to the vocation.

Mr. Sheean: I think there is no disposition to quarrel about that, Doctor.

Dr. Cory: All right.

Mr. Sheean: Now, refering to the disabilities at page 1, that were paid under those policies. In the preferred risks for which a five dollar weekly indemnity is paid, would the same sort of an injury result in payment of the indemnity to the banker or the doctor, as would justify the fireman in calling upon the company to pay a weekly indemnity? Take, for instance the case of a sprained ankle. The preferred risk ordinarily would have a pretty hard time collecting weekly indemnity, would they not, in a situation of that sort?

Dr. Cory: Why, if liability of the company were shown, I don't see how he would have any harder time than the fireman.

Mr. Sheean: Doctor, all I was seeking was to develop, is that this is a disability which disables the person from following his usual avocation.

Dr. Cory: The ordinary banker, or doctor, or lawyer probably could talk and do their usual business without losing time, where the fireman that had a sprain would have to lose time.

Mr. Sheean: Yes; in other words, in this classification that you put in here for engineers and firemen where there is a weekly indemnity feature, they are placed very much higher than certain classes, are they not? In other words, isn't it true that ordinary laborers fall into that higher rate class, that take a higher rate?

Dr. Cory: I don't know. I didn't look that up.

Mr. Sheean: Don't you know that, speaking generally, in these accident insurance cases, that there is a higher rate for the common laborer than there is on accident policies for the banker or preferred class?

Dr. Cory: I don't think the common day laborer carries any of that kind of insurance.

Mr. Sheean: I am not asking about whether he carries it or not, but whether or not the rules of the company provide

for a higher rate of pay for accident insurance for the common laborer than for the so-called preferred risk?

Dr. Cory: No, they do not; they provide a less payment, according to how much he pays for. The fireman and engineer are put in a special contract by themselves.

Mr. Sheean: The common laborer, Doctor, gets insurance cheaper than the preferred class?

Dr. Cory: He gets it cheaper than the firemen.

Mr. Sheean: Well, you misunderstood my question. Covering the common laborer, who is not exposed to any hazard in and about his work at all, he is required to pay a higher rate for accident insurance than is the merchant or the banker, as to whom a slight injury will not enable him to collect the disability benefits.

Dr. Cory: He will fall somewhere between the special contract and the preferred risk, but just exactly what the rate is and the benefit is, I am not prepared to state.

Mr. Sheean: Yes, I understood that, but that laborers do pay a higher rate than the preferred risk, there is no question about that, is there?

Dr. Cory: The preferred risk is the cheapest risk and the highest benefit that these companies carry.

Mr. Sheean: And a part of that is attributable to the fact that, under the disability payments, a very much less injury to the laborer or to one who earns his living by manual work will entitle that person to payment, where the banker or professional man could not collect disability?

Dr. Cory: I am inclined to think that the same injury in any class would entitle the insured to collect if he was so disposed.

Mr. Sheean: What is covered by the weekly indemnity spoken of here, Doctor, is it a disability to perform your usual work?

Dr. Cory: It is a disability resulting in loss of time.

Mr. Sheean: Yes.

Dr. Cory: You would have to make affidavit as to your loss of time, and submit yourself to an examination, and file your proofs.

Mr. Sheean: Yes. Doctor, do you think that a sprained ankle would possibly have the same effect upon the ability of the

banker to follow his usual avocation, as the sprained ankle has upon the common laborer to follow his usual work?

Dr. Cory: No, I do not.

Mr. Sheean: Therefore, both parties filing absolutely truthful affidavits, for exactly identical injuries, one will be entitled to his indemnity and the other not?

Dr. Cory: No, I think they are both entitled to indemnity.

Mr. Sheean: Have you ever seen a policy of accident insurance, Doctor, which entitles to weekly indemnity, unless the person be disabled from following his usual avocation?

Dr. Cory: Yes, they say in all or in part; lots of them carry total benefit or in part.

Mr. Sheean: These rates you quote here on the first page, are they the rates in whole or in part?

Dr. Cory: These rates are taken from the rate book. Now, whether the contract is made in compliance with the rates or not, or whether a joker is worked in there, I don't know.

Mr. Sheean: Can you tell us what is the meaning of the words "Weekly Indemnity," which you set out in the third column of the first page—

Dr. Cory: The second column you mean, don't you?

Mr. Sheean: The second column, yes.

Dr. Cory: That is the amount of benefit that the contract carries for loss of time, in whole or in part. If the injury is such that he does not follow his vocation, he is entitled to so much benefit, depending on whether he selected one thousand dollars and five dollars, or one thousand dollars and twelve dollars and a half, and the Premium, I take it, is taken out of his pay check until it is paid.

Mr. Sheean: On page 1, Doctor, where it is shown that there are higher rates for engineers and firemen on Southern roads, have you examined their rate sheet to ascertain whether or not, in other avocations than railroading, there is a higher rate in the South than in the West, as to machinists, structural iron workers, or any other classes?

Dr. Cory: I did not.

Mr. Sheean: And you are not able to state as to whether or not the same territorial division that is made between the North and the South as to engineers and firemen, is also made—

Dr. Cory: At the time I made my investigation, I was concerned solely with engineers and firemen. I wanted to ascertain the attitude of the accident companies toward this particular vocation.

Mr. Sheean: Are you able to state whether or not there is such a territorial distinction in this company?

Dr. Cory: I am not. I did not look for it.

Mr. Sheean: A colored fireman is not eligible to membership in your organization?

Dr. Cory: Certainly not.

Mr. Sheean: And your organization in no manner represents any colored firemen?

Dr. Cory: I think not.

Mr. Sheean: None of the rates that you have quoted, are applicable to any colored firemen?

Dr. Cory: None of what rates, do you mean?

Mr. Sheean: Of insurance, for which a fireman is insured in your order?

Dr. Cory: We would not insure such firemen on a bet.

Mr. Sheean: Colored firemen, you mean.

Dr. Cory: Colored firemen, yes, sir.

Mr. Sheean: That is all.

Mr. Nagel: Doctor, there are no colored engineers in the South?

Dr. Cory: I don't know whether there are or not.

Mr. Nagel It is a safe statement, is it not, that there are practically none?

Dr. Cory: I know of none, but I see a statement that was made in a table here, where they claimed there were some colored engineers yesterday, and I heard Mr. Stone state that there was one that there was some doubt about.

Mr. Nagel: The premium for insurance for engineers in the Southern territory is higher than it is for engineers in the Northern territory?

Dr. Cory: Yes, sir.

Mr. Sheean: So that the increased premium for firemen is not to be attributed entirely, in the same territory, to the fact that there are colored firemen in the Southern territory?

Dr. Cory: I would think it would be due to the same fact, Mr. Nagel, because if the incompetency of one of those men on

an engine results in disaster, generally the two are disabled or killed.

Mr. Nagel: That is your theory?

Dr. Cory: That is my theory, and experience proves many times that the engineer and fireman are killed or disabled together in collisions and derailments.

Mr. Nagel: In case of special contracts, for instance, in the Fidelity and Casualty Company, there seems to be no distinction between the different sections.

Dr. Cory: They put the South and the West together.

Mr. Nagel: But they give the same rate, do they not, for both engineers and firemen. That is, they require a higher rate for the Southern territory?

Dr. Cory: They give the same benefit and charge an increased rate.

Mr. Nagel: Yes, but it applies to both engineers and firemen?

Dr. Cory: Yes.

Mr. Nagel: In the same proportion?

Dr. Cory: Yes.

Mr. Nagel: Whereas, in the other companies, there is a distinctly higher rate for engineers than there is for firemen in the same territory?

Dr. Cory: I don't quite get the point of that question.

Mr. Nagel: Take the Continental Casualty Company, it has substantially a higher rate for firemen than it has for engineers in the southern territory, has it not?

Dr. Cory: Yes, sir.

Mr. Nagel: Take the case of the Fidelity and Casualty Company in case of special contracts it has the same rate for engineers and firemen in the southern territory, although that rate is higher than the same rate for both, in the northern territory?

Dr. Cory: Whatever the rate is, it is shown right here in these tables.

Mr. Nagel: That is all.

RE-DIRECT EXAMINATION.

Mr. Carter: Doctor, in the comparison between rates for industrial insurance conducted by the Metropolitan Life Insur-

ance Company, and accident insurance conducted by other companies, can there be a comparison fairly made there?

Dr. Cory: No.

Mr. Carter: They are not similar classes of insurance?

Dr. Cory: No.

Mr. Carter: One insures the baby without any examination?

Dr. Cory: Without any examination at all; just an inspection.

Mr. Carter: Insures them against death?

Dr. Cory: No, it is only a mortuary benefit in the industrial department, and I think if the baby lives a certain time, endowments are paid upon those small contracts.

Mr. Carter: Very great commissions are paid to those men going around and collecting that ten cents from these poor women?

Dr. Cory: Yes, the usual commission is fourteen or fifteen times the weekly premium, and if the business is in effect three months, the premium is five or six times more for the agent.

Mr. Carter: That is simply a misfortune of the poor, is it not?

Dr. Cory: I would take it that way

Mr. Carter: Turning back to page 1, the Continetal Casualty Company sets forth very distinctly there, that the risk of a fireman is four times as great as that of a merchant, banker, or a professional man, does it not?

Dr. Cory: According to the indemnity allowed and the premium charged, that is shown.

Mr. Carter: That is all.

(Witness excused.)

Mr. Carter: Mr. DeGuire.

Mr. Stone: While the next witness is coming, I would like to say, if I might, that that engineer that there is some doubt, about, is not a member of our organization, just so there will be no misunderstanding about it.

G. N. De GUIRE was called as a witness, and having been duly sworn, testified as follows:

DIRECT EXAMINATION.

Mr. Carter: State your name.

Mr. DeGuire: George N. DeGuire.

Mr. Carter: Your place of residence.

Mr. DeGuire: Manitowoc, Wisconsin.

Mr. Carter: Your occupation.

Mr. DeGuire: Locomotive firemen and engineer on the Chicago & Northwestern Railroad.

Mr. Carter: What have you been doing the last two or three months, Mr. DeGuire?

Mr. DeGuire: I have been assisting Mr. W. S. Carter, President of the Brotherhood of Locomotive Firemen and Enginemen in the preparation of certain exhibits that have been used, and will be used, in the present arbitration.

Mr. Carter: Have you prepared a special exhibit with regard to applications and examinations for employment?

Mr. DeGuire: Yes, sir.

Mr. Carter: Will you examine that?

Mr. DeGuire: That is the exhibit that I have prepared.

Mr. Carter: We introduce this as Exhibit 47.

(The document so offered and identified was received in evidence and thereupon marked "Employes' Exhibit No. 47, January 14, 1915.")

Mr. Carter: Mr. DeGuire, what is the general purpose of this exhibit?

Mr. DeGuire: The purpose of this exhibit is to show the qualifications that are required of applicants for the position of locomotive firemen by Western railroads, and the physical examination that they are required to take prior to entering the service, and again, prior to the promotion to the position of an engineer.

Mr. Carter: Now, in your own way, state what is brought out in your introductory here, "Applications for Employment."

Mr. DeGuire: The various forms of the applications for employment in effect on the Western railroads, indicate that practically all railroads require an accurate history of the applicant and his family; also a complete record of past employment for a period of at least five years next preceding the date of making application for employment; and in order to allow a complete investigation to be made of his character, ability, fitness, and the reasons for dismissal or leaving the service of the various companies, the applicant must authorize said companies and their officers, and the officers of any other company or firm by

whom he has been heretofore employed, to answer any and all inquiries as to his conduct and qualifications while in such service, and so far as they may know, the cause of his leaving same.

The applicant is also required to give a complete history covering his past and present physical condition, including color perception, vision and hearing, and to answer questions relative to his use of intoxicating liquors.

Mr. Carter: Is it generally the practice to require an applicant for the position of locomotive fireman to sign away what might be known as his legal rights?

Mr. DeGuire: Yes, sir. Each application blank, or practically all application blanks require that he sign certain agreements, and those agreements give away certain rights that he would have if he did not sign them.

Mr. Carter: I notice you publish an application in effect upon the Santa Fe, form 1692. Do I understand that that which appears on page 4 is simply the title page and final page?

Mr. DeGuire: Yes, sir.

Mr. Carter: The real application for a situation begins on page five, does it?

Mr. DeGuire: Begins on page five and terminates on page fourteen.

Mr. Carter: It takes nine pages to get a job?

Mr. DeGuire: It takes nine pages to cover an application that an applicant is required to fill out prior to entering service.

Mr. Carter: Let us take page 5 first, these instructions. Call attention to any specific features of those instructions which you think perhaps are unusual, in making applications for employment.

Mr. DeGuire: One of the unusual things that come to my mind, is the fact that the application must be sworn to before a notary public.

Mr. Carter: If a man would ask for a job in any ordinary industry, they would not make him take oath?

Mr. DeGuire: No, sir.

Mr. Carter: Before his application was passed on, would they?

Mr. DeGuire: No, sir.

Mr. Carter: I notice that you have some black type in

here; is that your black, or the black type that appears in the application?

Mr. DeGuire: That is the black type that appears in the application.

Mr. Carter: What is that?

Mr. DeGuire: It says that "Surgeons making such tests and examinations will report result of same on proper blank, sending one report to the Division Superintendent, or Master Mechanic, and the other to the Chief Surgeon."

Mr. Carter: What does that say about a fee of one dollar?

Mr. DeGuire: It says that a fee of one dollar will be collected—

Mr. Carter: You had better read it.

Mr. DeGuire: It says, "A fee of one dollar will be charged for making such examination, and the same will be paid by the Company unless the applicant is accepted as an employe, in which case, the amount of the fee will be deducted from his wages."

Mr. Carter: If he gets a job they charge him a dollar for getting the job, is that right?

Mr. DeGuire: I don't believe that is true. I understand the Santa Fe Railroad, while they have that in their blank, do not pretend to live up to it. My information comes from a former chief clerk of a trainmaster at Newton, Kansas. He advises me that before the doctor will examine the applicant, he must pay the fee of one dollar for examination; and if it is necessary for vaccination, he must pay another dollar for vaccination. That they don't deduct it out of his wages.

Mr. Carter: It is a pay in advance proposition then?

Mr. DeGuire: A pay in advance proposition, or he don't get the job.

Mr. Carter: Supposing he is not qualified to get a job as fireman, it says here that the "same will be paid by the Company." Do you suppose that fee is actually paid by the company, or are not these men on a salary?

Mr. DeGuire: Why, I don't believe they pay it.

Mr. Carter: Ordinarily a medical examiner of a railroad would require a salary, or something of that kind, would he not?

Mr. DeGuire: Why, he receives an annual pass and a salary.

Mr. Carter: Ordinarily?

Mr. DeGuire: Ordinarily.

Mr. Carter: You don't know whether or not he might get this on the side?

Mr. DeGuire: I have no information to prove whether he would or would not.

Mr. Carter: Another statement says here, "No person shall be employed who has any organic disease, and no one to be employed in train or station service who has not a good common school education." Does not that require a comparatively high class of men, physically and mentally, to get a job on a railroad of whatever character?

Mr. DeGuire: Yes, sir, it absolutely does.

Mr. Carter: Do you believe that a very large proportion of these negro firemen of the South could get a job on the Santa Fe, if they had to have a good common school education?

Mr. DeGuire: I do not understand that any of them could secure employment.

Mr. Carter: Now, will you pass over to this form 1692 of the Santa Fe and call attention to certain matters that have come to your notice?

Mr. DeGuire: Starting on page 5.

Mr. Carter: You skip all of these pages?

Mr. DeGuire: On page 5.

Mr. Carter: I see.

Mr. DeGuire: Starting on page 5, you will find the questions to and including 9. Turning over to page 6, you will find that those questions extend down to 12, and they cover a complete family history.

Mr. Carter: Pedigree.

Mr. DeGuire: In other words, a pedigree, absolutely. As you go on down from 13 to 20, to and including 24 and 25, you will find the history of his past and present employment, giving an absolute history for a period of five years back, telling what occupation he held, telling who he worked for, and practically all information that would be in his possession must be given on this blank. Down at the bottom of page 7, or, rather, at the bottom of the table at page 7, you will find the following:

In order that the Railway Company of which I am making

application for employment may be fully informed as to my personal character and my qualifications for the position for which I have made application, I refer to each of my former employers, and request and authorize each of the companies for whom I have worked to give the above named Company all the information they may be in possession of, whether shown by my personal record or otherwise, as to my personal character and also my qualifications for the position I have herein applied for, and the reason why I was discharged or quit service upon any inquiry that may be made of them, or either of them, by said Railway Company.

Mr. Carter: After having signed such an agreement as that, do you believe the applicant would have any recourse against blacklisting?

Mr. DeGuire: No, sir, I do not.

Mr. Carter: Doesn't that pave the way for the blacklisting practice?

Mr. DeGuire: I have always understood that is what it was, a blacklisting practice to prevent any man from securing employment on a railroad that did not come up to what the railroads required for their men.

Mr. Carter: For instance, if a man worked for the X, Y & Z Railroad, and was dismissed, he could not get work on the A, & B C Railroad until the X, Y & Z officials said so?

Mr. DeGuire: Absolutely, that is true.

Mr. Carter: If they wanted to prevent him getting work they would give some serious cause for his dismissal?

Mr. DeGuire: They would.

Mr. Sheean: Do you know of any such instance, and if so, name it and give the name—

Mr. DeGuire: The instance that comes to my mind, Mr. Sheean—

Mr. Sheean: Of which you have personal knowledge. Give the name of the superintendent.

Mr. Carter: I would suggest that if counsel for the railroads restrain himself that directly he can find it all out on cross examination.

Mr. Sheean: I will do so. Pardon me.

Mr. Carter: Will you go on from where you were talking? I asked you just now, does this not effect a practical blacklist upon the men—do not misunderstand me.

The Chairman: What do I understand you to mean by a blacklisting?

Mr. Carter: A former employer preventing any ex-employe of his securing employment with another employer.

The Chairman: Do you mean maliciously preventing him?

Mr. Carter: It generally carries with it a malicious intent; not necessarily that it should be. Mr. Chairman and gentlemen, it might be that the railroads had agreed among themselves that any man who had participated in a strike should never again be employed. Now, if a man participates in a strike on one railroad in a distant portion of the country and subsequently makes application for a position on another railroad, after having signed this agreement, the railroad to which he makes application is privileged, without the penalty of any law, state or national, to secure information from his former employer and the former employer is privileged to tell him that he was dismissed because he was a striker, and I think our experience is that seldom do any railroads hire a man who was ever guilty of participating in a strike, unless it was on his own road, where the men went back to work. I will say, in other industries and in the railroad industry, on some roads, a man who participates as a member of a union, is denied employment, and thus, in ordinary industries, all that would be necessary to do would be to say that this man was a member of the Machinists' Union, and he could not get work on some of the roads participating in this Arbitration. That is the nature of the blacklisting to which we refer.

The Chairman: It is for the purpose of showing this condition of affairs that this blank is offered, as I understand you?

Mr. Carter: My understanding is that some states have attempted to protect the workmen against blacklisting, and have enacted laws on the subject. Now, this gets around that law. This is a waiver by the applicant, and he says to the prospective employer, "You can find out anything you want to about me so far as my last employers are concerned."

Mr. Carter: What else do you find?

Mr. DeGuire: In turning over to page 8, taking questions 21, 22 and 26, you will find that it requires the applicant to state his past and present physical condition. He must go on record and tell what diseases he has had, tell if he has had any

diseases, also tell who took care of him at that time, and give the history of those diseases or injuries.

Mr. Carter: I suppose this is simply an effort on the part of the railroads to get thoroughly healthy men, men who have the physical ability to fire a locomotive.

The Chairman: Do you object to that provision?

Mr. DeGuire: No, Mr. Chairman, we have no objections to that provision in the blank, but we do believe that when the railroad companies require that high degree of efficiency, require men to be what we would class as the cream of the wheat of this country, such conditions ought to be taken into consideration where they are basing tables for wages to be applied to that class of men.

The Chairman: It is with that view that you offer this exhibit?

Mr. DeGuire: It is with that view that we offer this exhibit, as I understand it.

The Chairman: You may proceed, Mr. Carter.

Mr. Carter: I note question 28 here—do you understand that drinking on duty or before going on duty, or frequenting places where intoxicating liquors are sold, is sufficient cause for dismissal from the service—you do not object to that, do you?

Mr. DeGuire: No, sir, we have no objection to that whatever.

Mr. Carter: The fact of the matter is, the railroad business requires abstinence from drinking liquor?

Mr. DeGuire: It is my opinion that any man engaged in train service on a railroad should absolutely abstain from the use of liquor.

Mr. Carter: Then if they establish a rule that perhaps affects the employes of but few other industries, do you think that that should receive some consideration in fixing the wages?

Mr. DeGuire: I absolutely do, because it protects the lives of the traveling public and also gives better service to the railroads.

Mr. Carter: And a higher standard of employes is established by this rule?

Mr. DeGuire: Yes, sir.

Mr. Carter: And, when the railroads, after they employ a man, establish what is known as Rule G, they do it not only

for the good of the railroad but for the good of the public and the good of the men themselves?

Mr. DeGuire: Yes, sir.

Mr. Carter: You don't object to that?

Mr. DeGuire: Not at all, because it is my opinion that it does a great deal of good.

The Chairman: That would really be a good rule to apply to every vocation in life, would it not?

Mr. DeGuire: Absolutely, because I can look back to not so many years ago when an engineer on the railroad at that time was looked up to as a man who frequented saloons and a man that gambled and all of those little things in life, that would not tend to elevate him in social life. Today you do not find that; today you find very, very few men in locomotive or train service that use liquor; you find a clean, upright set of men that I believe you can compare with the best of the people in this country.

Mr. Carter: Having established that high grade of citizenship in selecting their locomotive firemen, do you believe that that should be considered in the fixing of their compensation, as well as their arduous duties?

Mr. DeGuire: Yes, sir, I do.

Mr. Carter: Now, I want you to read Question 29, and see if you can connect it with the paragraph at the foot of page 7.

Mr. DeGuire: Question 29, reads as follows: "Are you a member of any organization or order? If so, state fully what organization or order you are a member of."

Mr. Carter: And Question 30.

Mr. DeGuire: Question 30: "Are you an officer of any organization or order? If so, state fully your position."

Mr. Carter: Now, Mr. DeGuire, you do not think that is of very much effect so far as locomotive firemen are concerned, do you?

Mr. DeGuire: I believe that they ask that to connect up with the references that they have required in the preceding pages.

Mr. Carter: Isn't it a fact that where men are hired as firemen, that practically all Western railroads do not discriminate against members of the Brotherhood of Locomotive Firemen and Enginemen?

Mr. DeGuire: I do not believe that they do.

Mr. Carter: How about machinists and boilermakers?

Mr. DeGuire: There are some railroads in the West that I understand that members of the Machinists' and Boilermakers' Unions are not allowed to work on.

Mr. Carter: This question would bring that out, wouldn't it?

Mr. DeGuire: Yes.

Mr. Carter: Suppose he answered "yes," what do you think his chances would be for a job?

Mr. DeGuire: I do not believe they would give him employment.

Mr. Carter: Suppose that a fireman, a member of this Brotherhood, would drop around to the Louisville & Nashville at Louisville, what do you think the answer would be if he said he was a member of this organization?

Mr. DeGuire: I might say that it would be that they could not use him as a fireman.

Mr. Carter: Didn't need him at that time?

Mr. DeGuire: That they would not need him.

Mr. Carter: No matter how badly they needed firemen, they would not hire him?

Mr. DeGuire: No, I don't think so.

Mr. Carter: Suppose, in a case, that they did refuse him employment because he was a member of an organization, this release, already signed, would relieve the company from any liability for blacklisting?

Mr. DeGuire: Yes, and that also—in all of these application blanks you will find that in some portion of them they state that this man is on a probation period. That he is not an employe until all these investigations have been made and recommendations returned either for or against him, after which time he becomes an employe of this company.

Mr. Carter: What do they use him for?

Mr. DeGuire: They use him until they find out whether or not they want to keep him as an employe.

Mr. Carter: They must need him?

Mr. DeGuire: They need his services, but they don't want him unless he comes up to what they call a desired employe.

Mr. Carter: He is good enough to use, however, as long as they need him, isn't he?

Mr. DeGuire: Yes.

Mr. Carter: And when they find out he has done something that his former employe has classed as bad, he is dismissed, is he?

Mr. DeGuire: Yes, sir, he is dismissed.

Mr. Carter: And that is not a blacklist, is it?

Mr. DeGuire: It is not considered so by the railroad, but I would consider it an absolute blacklist.

Mr. Carter: The man who is dismissed considers it a blacklist, doesn't he?

Mr. DeGuire: Yes.

Mr. Carter: If there was a law against blacklisting, this release that he signs against blacklisting would probably save the railroad, wouldn't it?

Mr. DeGuire: It would, because it is a waiver that he signs, giving them permission to give any and all information about him.

Mr. Carter: Sometimes a man is not permitted to sign away his benefits under a statute or law.

Mr. DeGuire: That is true.

Mr. Carter: Then the railroads would miss its guess on that, wouldn't they?

Mr. DeGuire: They would, in some states.

Mr. Carter: Now, I want you to read this question 31.

Mr. DeGuire: "Do you understand that this company does not block all frogs, guard-rails or switches, and that you must govern yourself accordingly?"

Mr. Carter: Now, why should guard-rails or frogs or switches be blocked?

Mr. DeGuire: Because they are very dangerous.

Mr. Carter: Well, of course, a road that is a prominent apostle of the doctrine of "safety first" would hardly have that in their application for employment, would they?

Mr. DeGuire: They all have it.

Mr. Carter: And yet they preach "safety first" and don't block their frogs, guard-rails and switches, and make a man sign his application for employment, sign a statement that he knows it is a hazard he is going to assume when he goes to work for the company?

Mr. DeGuire: That is true. While they may block some

frogs, if they left any of them unblocked they would have that covered by question 31.

Mr. Carter: Now, what does 32 say?

Mr. DeGuire: 32 says "Do you understand that a failure to comply with the rules and regulations of this Company is a sufficient cause for dismissal from the service?"

Mr. Carter: I guess he would understand that afterwards, if he didn't understand that before.

Mr. DeGuire: Yes, I believe he would.

Mr. Carter: Now, about 33?

Mr. DeGuire: 33 reads as follows: "Do you understand that every employe of this company whose duties are in any way prescribed by the rules must always have a copy of the rules at hand when on duty, and must be conversant with every rule, and that you must render all the assistance in your power in carrying them out, and immediately report any infringement of them to the head of your department, and do you agree that such rules, including any changes therein or additions thereto from time to time, shall be a part of your contract of employment?"

Mr. Carter: That is a requirement that an applicant must agree to keep himself up to the highest standard of efficiency required by the rules? Isn't that true?

Mr. DeGuire: Yes, sir.

Mr. Carter: You don't object to that?

Mr. DeGuire: I don't object to that. There is only one thing, I believe, I object to and that is he must sign a contract at the time he enters the employment that any future changes made in this rule he knows about them, according to his signature. I don't think that is right. I believe anything that is in effect at the time he goes into service is all right, but I do not believe they should bind him for the future.

Mr. Carter: This language, where he agrees to report any infringement, does that make him a special detective, or special agent of the company to report his fellow employes?

Mr. DeGuire: Why, I would contend that if he found they were infringing or breaking the rules he would be obliged to report them under that section.

Mr. Carter: Now, 34.

Mr. DeGuire: "If employed, will you faithfully discharge

the duties assigned to you to the best interest of the company, and pay all your bills promptly each month?"

Mr. Carter: And then among the many other accomplishments required of a locomotive fireman, he must pay his bills, is that true?

Mr. DeGuire: That is true, unless he wants to lose his position.

Mr. Carter: 35.

Mr. DeGuire: 35. "Do you understand that at some points on this line there are platforms, sheds, roofs, water tanks frames, telegraph poles, bridges, scales, cars, and other side obstructions and trolley wires of street railways, which may be dangerous, and that you must inform yourself as to the location of such obstructions and use due care to avoid injury thereby."

Mr. Carter: That is really a premonition of death, would that be?

Mr. DeGuire: That is a notification—

Mr. Carter: When a man signs that, he recognizes the chances are he is going to get hurt.

Mr. DeGuire: That is a notification to him that there are many dangerous conditions under which he is going to be required to work which may cause his death.

Mr. Carter: And a man may anticipate there is something coming to him if he gets the job?

Mr. DeGuire: Yes, there usually is.

Mr. Carter: The railroad recognized by that question that there are some very dangerous conditions in existence or in effect?

Mr. DeGuire: They recognize that there are some dangerous conditions that this man will have to work under if he takes this position.

Mr. Carter: Do you know of any national legislation that has been suggested or proposed which would require companies to remove obstructions from the side of the track a sufficient distance to not kill engineers and firemen and brakemen and conductors?

Mr. DeGuire: Yes, I understand that such legislation has been introduced.

Mr. Carter: Has the gradual growth of locomotives and cars, sideways as well as longways, brought the heads of the engineers and firemen any closer to the obstructions?

Mr. DeGuire: Yes, it naturally does because, when you widen out your locomotive cab, naturally whatever has been along the right of way will be that much closer to the cab.

Mr. Carter: If a man signed this application when they had little locomotives and since they have got this big locomotive, that they cannot put sand boxes or bells on, that question would not relieve the company, would it, because the engines have grown so big that they nearly sidesweep obstructions?

Mr. DeGuire: I think it would release them.

Mr. Carter: I think not. I think the courts would probably hold that even a railroad employe had not the right to sign away all of his rights. He would have a lawsuit probably

Mr. DeGuire: That is probably what it would result in.

Mr. Carter: If he had money enough and a lawyer good enough he might win. Read 38.

Mr. DeGuire: Thirty-eight reads: "Do you understand that if you are injured in any manner while in the service of this Company that you will not be allowed to return to the service of said Company, in any capacity, until you have executed a release or made satisfactory settlement with the proper officer and secured from him a 'clearance' on account thereof? And do you hereby agree that your re-entering the service of said Company, in any capacity, after being so injured, shall be taken and construed as a release of any and all claims and demands which you may have, or claim to have, against said Company on account of such previous injuries, the re-employment of you by the said Company subject to its will being hereby acknowledged to be sufficient consideration for such release, notwithstanding you may not have received any other compensation than such re-employment."

Mr. Carter: Then, if these railroad companies were as anxious to compensate their employes as was indicated this morning by the counsel for the railroads in securing a compensation law, they might have a chance to exhibit their charity at home by omitting that from their applications?

Mr. DeGuire: Yes, sir. That would be quite an improvement.

Mr. Carter: Then, it would appear that while they go to Washington to get certain legislation they very carefully protect themselves against any liability for any accident?

Mr. DeGuire: They do, because they had this clause put

in there for this purpose, and, if I understand it correctly, if a man returned to work and received no compensation other than re-employment, and he was left disabled to a certain extent, that would release the railroad company?

Mr. Carter: And when a man is injured and the gentlemanly claim agent come around to him and says to him "You can either sign this release for a dollar or you have no job," is that what that means?

Mr. DeGuire: That is exactly what it means, because he cannot go to work again until that release has been signed.

Mr. Carter: Under the circumstances now in effect would not an engineer of many years experience sacrifice a great deal in the way of damages for injury rather than lose his job?

Mr. DeGuire: Yes, sir, he would make great sacrifices.

Mr. Carter: Now read question 40.

Mr. DeGuire: "Do you understand that the company does not have all its main tracks and side tracks ballasted or surfaced, and that the tracks are liable to have slivers on the rail; and that there are cattle-guards and uncovered drains on the main tracks and side tracks, of all of which you accept notice, and agree to particularly advise yourself thereof?"

Mr. Carter: There is another warning of inevitable death. Isn't that true?

Mr. DeGuire: It is absolutely true. It calls his attention to dangerous conditions again.

Mr. Carter: Don't you think that the "Safety First," through the railroads, gets an awful slam by this application for employment?

Mr. DeGuire: I think the "Safety First" that the railroads have been preaching for so many years is an excellent thing if they adopt it. I believe they do adopt it until it costs them some money, and then it is no good.

Mr. Carter: It would cost them some money to fix this track up, wouldn't it?

Mr. DeGuire: Absolutely.

Mr. Carter: 41.

Mr. DeGuire: "Do you understand that no officer or employe of this company is authorized to request or require you to use defective tracks, cars, machinery, or appliances of any kind, except at your own risk of injury therefrom?

Mr. Carter: That is the worst of all. I believe that is

the common law doctrine of assumed risk written into the application. They tell you in their application that you have got to assume all these risks, and then when you talk to them about wages on account of these risks, they say the risks perhaps do not exist. Is that right?

Mr. DeGuire: That is what they claim. They claim it is a signed application.

Mr. Carter: Now, the next. Let us read 12?

Mr. DeGuire: 42, you mean.

Mr. Carter: 42. My eyes are bad.

Mr. DeGuire: 42 reads as follows: "Do you understand that this company desires to employ only experienced men in its service, and does not undertake to educate inexperienced men; and do you state that you are aware of the hazards and dangers of the business, and agree to rely upon your co-employes, and not upon the company, for information as to any or all things, including the character of any kind of machinery and appliances which would render your work dangerous or subject you to injury, or which may be necessary to the proper performance of your duty; and do you waive any responsibility whatsoever on the part of the company or its officers touching the matters herein referred to, and that this shall apply to any position to which you may now or hereafter be assigned?"

Mr. Carter: Who is going to carry the risks or the losses incidental to the hazards of occupation, if these are carried out literally?

Mr. DeGuire: The employe.

Mr. Carter: Does this absolve the company from any responsibility?

Mr. DeGuire: Absolutely. It places it up to the employe and his fellow workers.

Mr. Carter: Supposing through the fiscal policy of the railroad—now, mark me, I do not mean the managerial policy, or the policy of the operating officers, but supposing through the policy of those who handle the purse strings, tracks were allowed to become very defective, ties to rot, rails to become in bad condition, ballast—in fact, no ballast at all, would not the gentlemen who handle the finances of the company be absolved from all responsibility for deaths or accidents resulting from such defective tracks, by that?

Mr. DeGuire: He would by that.

Mr. Carter: You think, perhaps, there are some recourses to which even a railway employe may refer for protection?

Mr. DeGuire: I really believe there is.

Mr. Carter: Let us read the next one to 42.

Mr. DeGuire: "In consideration of my employment by said company, I further agree that whenever I shall sustain any personal injury while in the service of said company, I will allow its surgeons and any medical examiners it may select to examine my person and body as often as the company may deem necessary in respect to the alleged injury, and I hereby waive all objections to such surgeons or medical examiners testifying whenever called upon by the company; and I further agree that my refusal to allow any such examination to be made or testimony to be given shall be a bar to the institution of prosecution of any action on account of such injuries; and any action pending at the time of such refusal shall at once abate in consequence thereof."

Mr. Carter: Did you ever join the Ancient Order of Hoodoos?

Mr. DeGuire: I must plead that I am not guilty.

Mr. Carter: Well, they have a terrific oath to keep secret everything and anything. Does not that sound like it?

Mr. DeGuire: Well, it sounds like an awful oath. The bad feature of it all that I see is this, a man going into the company's office to fill out this application for employment is given a form to fill out that it took up from page 4 to 13 to print. He would have to have a splendid memory if he was able to memorize that blank or a portion of it. He signs certain things that you couldn't make him believe he signed two hours after he leaves the office, and, therefore, I believe that it is absolutely unfair to take a man into an office and get him to sign something that he will not remember what he has signed, or does not understand when he is signing.

Mr. Carter: Is there anything on pages 12 or 13 that you want to bring out?

Mr. DeGuire: On page 12 you will find that the railroad company, in addition to the references they have required relative to his former occupation, require the names and addresses of additional references, men who have known the applicant for a period of years, and they must be householders and in good

standing, who have known him well at least five years. You will find that on page 12.

On page 13—

Mr. Carter: "Should I enter the service," right at the bottom. What does that say?

Mr. DeGuire: "Should I enter the service of this Company pending the approval of my application, and said application be not approved, I agree to be removed from the service at once and without complaint, and will not ask or expect to be informed of the nature or source of replies to inquiries regarding my previous record."

Mr. Carter: Now, if a man has been a fireman on one railroad and loses his employment by dismissal, and he makes an application for employment on another road, so far as his general appearance is concerned, they think he is a good man, and they put him to work. Now, if the road which dismissed him before should make any report, truthful or otherwise, that would deprive him of continuing in the service of this company, would not that be a blacklist?

Mr. DeGuire: It absolutely would be, and I believe that is why it was put there.

Mr. Carter: Now go to page 13, "State of ——, County of ——, ——being first duly sworn, says that he is the applicant named in the foregoing application, that said application is signed by him, and that the answers to questions in said application are made in his own handwriting, and that each and all of the answers contained in said application are true." Signed. Subscribed and sworn to. Here is an adjurat of a Notary Public, and so forth.

Now, did you ever know of an application for any other place on earth outside of railroad employment that would have to make such an application as that to get a job?

Mr. DeGuire: No, I don't. I have inquired a great many times relative to the applications used by other employers and I cannot find anything that will equal this.

Mr. Carter: What is this note that is stamped on all these applications you see here printed below?

Mr. DeGuire: This is found on some applications, but not on all the applications on the western railroads.

Mr. Carter: They are rubber stamps, aren't they?

Mr. DeGuire: They are stamped on by a rubber stamp.

"I understand that Hospital Fee will be deducted each month from pay check, fifty cents on check for less than one hundred dollars, and one dollar over that amount."

Mr. Carter: And then when a railroad becomes a charitable institution and maintains a hospital to take care of its injured employes, it sees first that the employe pays the bill. Is that true?

Mr. DeGuire: That is absolutely true.

Mr. Carter: What is a man who is not a philanthropist who goes around posing as a philanthropist when he is not?

Mr. DeGuire: I would think he was an imposter.

Mr. Carter: When the railroads pay for the hospitals, it will be time enough for railroads to say how kind they are to the employes, but as long as the employes pay for it they deserve the credit for it and not the railroads.

Mr. DeGuire: They do. And there are several of the blanks I have here which require deductions to be made from salaries from employes to support hospitals.

Mr. Carter: Who manages them, as a rule?

Mr. DeGuire: As a rule, the railroad companies.

Mr. Carter: The men who pay the bills don't?

Mr. DeGuire: They don't.

Mr. Carter: In some instances, however, they have representation on the board?

Mr. DeGuire: They have a portion of the representation, but I understand the majority are always representatives of the railroad companies.

Mr. Carter: Suppose I should tell you that conditions have changed and that on the Northern Pacific road they have elected employes and placed them in charge of their entire hospital association, would not you think that was an improvement?

Mr. DeGuire: That would be an improvement, and I understand that is the condition on that particular railroad.

Mr. Curry: Employes of that railroad also have the controlling vote?

Mr. DeGuire: You are very fine. I wish you would apply that to all the rest of them.

Mr. Carter: If they were all like the Northern Pacific we would not have much complaint, would we?

Mr. DeGuire: No, we would not, because that is a very good railroad.

Mr. Carter: The question has been asked, do you know what the charge is on the Northern Pacific, compared with the charge on other railroads?

Mr. DeGuire: On the Northern Pacific—

Mr. Carter: I think that is unnecessary. I want to say, whatever the charge is, the Northern Pacific has a model hospital association. To supplement that statement, I believe it has been stated here that it is controlled by the employes instead of by the company; maybe that has something to do with its excellence.

Mr. DeGuire: It does not state the amount. Question 14 on the Northern Pacific blank reads as follows:

"Do you understand that you are required to become a member of the Northern Pacific Beneficial Association upon entering the service of the Northern Pacific Railroad, and do you assent to that Association's rules and monthly deductions from your salary for this purpose."

Mr. Carter: And then the Northern Pacific, after having made the men agree to pay the expenses of its hospital association, actually places the control of this association in the hands of its employes, to a great extent.

Mr. DeGuire: I understand they have, and I believe that is very commendable.

Mr. Carter: What do you find now by glancing through these pages?

Mr. DeGuire: By glancing through these pages, I find practically a repetition of what we have already stated. Some of these blanks differ to some extent, but they cover the vital points, I believe, in about the same manner as the blank of the Atchison, Topeka & Santa Fe Railroad, relative to waivers and the use of liquor, and the requirements as to his health and physical condition, and some of them have hospital associations; not all, however. I do not believe you will find very much difference in any of the blanks. Some of them are not quite so severe as the Atchison, Topeka & Santa Fe, and I believe some of them are a little bit worse.

Mr. Carter: You have not attempted to reproduce the entire lot?

Mr. DeGuire: No, it would have taken up a great deal of

space; but I have copies of the blanks of many railroads here with me, if you wish to turn them over to the Board for their information.

Mr. Carter: Some of them are very much milder than the Santa Fe?

Mr. DeGuire: Yes, sir, some of them are. The North Western's blank is much shorter than the Santa Fe's. I believe the M. K. & T. is just as long or a little longer. The shortest of all is the Chicago, Milwaukee & St. Paul.

Mr. Carter: There is no use taking up time on that. I guess cross-examination will bring out the good points.

Mr. DeGuire: Some of them also, as I said before, require an educational test.

Mr. Carter: What is this second chapter: "Physical Examinations." I understand this is the first degree, and now we have come to the second degree. Let us see what the second degree is in this instance.

Mr. DeGuire: In order that you may clearly understand it, I will read from the introductory on page 27.

"Prior to entering the service, applicants are required to pass a very rigid physical examination relative to age, nationality, height, weight, general health, acuteness of vision, color sense, range of vision, hearing and to ascertain the condition of the applicant's general health they are examined for defective lungs, hands and arms, feet and legs, head, face and neck, eyes and eyelids, mouth and teeth, spine and joints, groin, skin, blood vessels, long bones. The applicant's heart, abdomen and urine are also given a careful examination."

Mr. Carter: That is in addition to what we have been talking about?

Mr. DeGuire: That is in addition to what we have been talking about.

Mr. Carter: What is the next paragraph?

Mr. DeGuire: I go on and explain what you find in the following pages.

Mr. Carter: Let us see what we find on page 28.

The Chairman: I expect we had better suspend here. We will adjourn until tomorrow morning at 10 o'clock.

(Whereupon at 5 o'clock P. M., January 14, 1915, an adjournment was taken to 10 o'clock A. M., January 15, 1915.)

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